Dance performance in cyberspace
- transfer and transformation

A thesis submitted to Middlesex University in partial fulfillment of the requirements for the degree of Doctor of Philosophy

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Abstract

The aim of this research undertaking is to understand the potential development of dance performance in the context of cyberculture, by examining the way practitioners use new media to create artworks that include audience participation, and by endeavouring in their theorization. With specific reference to cyberspace as a concept of electronic, networked and navigable space, the enquiry traces the connections such practices have with conventions of the medium of dance, which operate in its widely known condition as a live performing art. But acknowledgement that new media and new contexts of production and reception inform the characteristics of these artworks and their discursive articulation, in terms of the way people and digital technologies interact in contemporary culture, is a major principle to their analysis and evaluation.

This qualitative research is based on case-study design as a means of finding pragmatic evidence in particulars, to illustrate abstract concepts, technological processes and aesthetic values that are underway in a new area of knowledge. The field where this research operates within is located by a mapping of published literature that informs a theoretical interdisciplinary framework, which contextualizes the interpretation of artworks. The selected case studies have been subject to a process of systematic and detailed analysis, entailed with a model devised for the purpose of this enquiry.

From this undertaking it can be claimed that while an extensive array of technologies, media and interactive models is available in this field, the artists pursue a commitment to demonstrate their worth for specifically developing (new media) dance performance, and for dance performance to articulate technological and critical issues for cyberculture studies. The results of this enquiry also contribute to conceptual understanding of what dance can be, today, in the light of technological changes.

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1 Chapter 1 - Introduction

This research undertaking has investigated the ways in which dance as a professional and academic discipline can engage with digital technologies as means of creative production and presentation in cyberspace. Cyberspace, used here to refer to a virtual and responsive environment where humans interact – long distinct from established performing spaces such as the theatre or the cinema - is an intangible and arguably a mutant place, generated with the use of computer technology and new media.

The title of the thesis intentionally brings together words that represent areas of thought, action and method that have developed separately in the twentieth century: the screen and the stage, the remote and the immediate, the body and the machine, the functional and the artistic, the scientific and the quotidian. In 2015 these words no longer necessarily represent antagonist concepts and disciplinary divides; thirty years after Gibson invented a metaphorical expression for his fiction of a public and crowded but unphysical realm, which was connected by remote machines (Gibson 1994 [1984]), cyberspace is an established extension of human life: an augmented reality. What impact has this context in the current production and experience of contemporary dance?

1.1 Studying the potential but yet unlikely

The expression “dance performance” intends to locate the present research undertaking in a field of expert artistic practice, which operates with institutionally certified conventions and has a history well accounted for in Dance Studies. Cyberspace is, on the other hand, a far more recent term, which is not usually related with that same field. The combination of these words aims to indicate a research devoted to the possible but yet unlikely, signalling an area of new knowledge.

Given the ubiquitous presence of computer technology in most of our lives, which mediates much of our communication with the other and the world, in-depth enquiry seems pertinent and necessary on this subject; such endeavour is based on the assumption that a new field for artistic production, creative development and cultural exchange is potentially under way. Research questions at the start of this project were largely concerned with identification of the research object to provide an overview of

the field - where can we find examples? Who is doing it? What forms does it take? From here a more specific enquiry was designed in order to examine the value of existing practices in aesthetic terms.

A new understanding of the virtual

The motivation for this project was largely located in the speculation that studying the implications of cyberspace for digital dance in terms of context, process and reception, promised interesting and rewarding challenges for professional practice and theoretical discourse.

To support my arguments I found Auslander's claim that cyberspace can be "a distinctive venue for performance art", rather than simply a communication medium or an archival space, particularly useful (Auslander 2001, p.124). What Auslander is arguing for is the engagement of performance artists with cyberspace; that they explore the potential for artistic production and dissemination, as artists from other disciplines have done, namely with Internet or digital arts, using multiple media. Despite the announced potential, the survey I made in 2009 of web-based artworks and related literature, showed minimal and scattered results in dance. Such paucity confirmed my intuition that this area was unexplored in dance practice and studies, and new questions emerged: why is it rare? Is cyberspace not a suitable medium for dance? What are the incompatibilities?

One initial response might be that the opportunity to create artworks for cyberspace is possibly being neglected by dance practitioners. Throughout this research undertaking I have identified justifications provided, such as the lack of technological skills and the "liquidity" of the social, cultural and economic environment permeated by ubiquitous technology (Bauman 2007). Thus some theoretical debate appears to be required in terms of dismantling the fears of dissolution with argumentation based on the thorough investigation of existing practice. However, in my view as both an expert dance practitioner and spectator, for this area to move forward the institutional frame that sets out what dance is needs to be extended, in order that others more widely accept the digitization of an art that has the body as "a primary instrument and means of expression" (Thomas 1995, p.6) and that is tied to a transient condition - "as you see it so it has gone" (p.10).

For Penelope Hanstein "artists create new works that expand our ideas about what we call dance, and research contributes new ways of understanding and knowing

dance" (Hanstein 1999a, p.25). A similar position is adopted in the present research undertaking. Such changes require however that we proceed in a speculative direction – to argue for the malleability of the concept of dance itself, and of the interest and potential of cyberspace as a creative venue – as well as a pragmatic one. What is needed is that we identify and reveal the evidence, from other makers' expert practices, of what this investment is worth.

As Frank Popper observes in relation to virtual art, dance performance in cyberspace "represents a new departure" in terms of "its emphasis on interactivity, its philosophical attitude toward the real and the virtual, and its multisensorial outlook" (Popper 2007, p.2). In order to study this field I have needed to identify and discuss a group of concepts and references that enable its characterization and contextualization: which theoretical frameworks are adequate to this purpose? Which disciplinary fields should be involved? Can we use established terminologies? What new lexicon appears and how is it applied in current scholarly discourse? How do we define artworks that depend upon the intersection of a tradition of physical and unmediated utterances with objectified mediated practices?

Transfer and transformation

Professionals, academics or spectators - it might be argued – have tended to associate dance and performance with a theatrical art, where the live human body is simultaneously the source and the display of an artistic utterance[1], which is shared in a public ephemeral event. From a pragmatic perspective, such widespread understandings of the medium of dance[2] are so meaningful that they have repercussions in that they tend, no doubt unwittingly, to marginalise contemporary incursions towards the digital virtual.

In response to what is effectively a perception of the ontology of dance, I hypothesise in this thesis that although dance artworks in cyberspace may seem alienated incursions in relation to theatre and even to the situation of cinema, some characteristics and values identified as specific to the dance medium remain indispensable to our engagement with and evaluation of new media dance forms. In

[1] Unlike painting or literature, which are forms mediated by materials and 'record' the result of a human activity. We can appreciate the painting after it was done, the painting act materializes with an object; but we appreciate dance as it is being performed by a person, who may or may not be the choreographer.
[2] I am here generalizing from verifying the outnumbering amount of stage-based productions in dance and the short occurrence of dance artworks in digital art festivals, but I will extend more on how the literature also supports my assumption below.

their study of new media Bolter and Grusin point out that "what is in fact new is the particular way in which each innovation rearranges and reconstitutes the meaning of earlier elements" (1999, p.270). I propose to summarize this idea through the notion of transfer, which has encouraged me to pursue a philosophical enquiry into what defines the medium of dance and the attributes of performance, observing how these definitions, such as 'the body', movement, choreography, or performance, are refashioned when dance practices use the new media available.

My strategy of conciliating understandings of dance and performance to encourage incursions into new media is nonetheless committed to the project of consolidating an emergent area of dance knowledge. I am arguing that the principle of transformation is implicit in dance performance that instantiates in cyberspace and the conceptual enquiry pursued in this project has been extended to existing practice: what are the innovations, in terms of making and presenting, that can be identified in relation to live performances and films? Are the results good, consistent, interesting – and if so, in what terms? On what basis can we discuss the quality of the works? In relation to which values has an aesthetic judgement been made, and does the critic share that aesthetic judgement? Since these new practices emerge with the context provided by computer technology and the information society my investigation is also concerned with the connections they establish in terms of the concepts, themes and new media that have developed within cyberculture.

1.2 Identifying a new area of knowledge

This research project departs from the position that presently, in Europe and elsewhere, mediated communication, digital information, remote relationships, and the emotional experiences resulting from online interaction, are considered as part of contemporary social life and have influenced current art practice. The steps of this techno-anthropological evolution have been followed by writers (such as Bell & Kennedy 2000; Featherstone & Burrows 1995; Gere 2008 [2002]; or Hayles 1999), who contribute to explaining cyberculture or, as some authors prefer, digital culture and information society. Alongside these developments, artistic explorations that continue depiction and critical analysis of this context, are accounted for in several references regarding digital aesthetics and/or new media art (namely by Wilson 2002; Grau 2003; Greene 2004; Popper 2007; and Paul 2008).

Dance professionals and scholars have not been indifferent to this scenario and participants in a new area of research – the field of dance technology – have explored generative and compositional processes, modes of interaction between elements of the performance and the audience, as well as presence and modes of representation (Leeker & Dinkla 2002). Despite affiliations with the 'dance on screen' movement, which is in the main connected to the study of relationships with cinema and video (see for example Dodds 2001; and Rosenberg 2012), the dance technology paradigm presupposed a wider range of uses for the technologies and of possible spaces of presentation (Corin 1999). My research project focuses on the digital virtual[3], in order to address how choreographers have dwelt with cyberspace as a venue for dance performance.

Resisting digitization

The increase of accessible and appropriate tools for the tasks of capturing, composing, 'staging' and streaming dance in a range of electronic formats, was crucial for the dance technology enquiry to get underway. However, as early studies of body representation for choreographic composition with computers demonstrate (Schiphorst 1993; Lansdown 1995; Gray 1989) it is difficult to translate dance in digital data; a problem that motion capture technology has also not fully resolved (deLahunta 2007). Although various pioneers worked with digital technologies in the 1990s – such as Cunningham, Forsythe, Wechsler, Mulleras and Corsino (accounted in Corin 1999) – technical improvements like broadband, core processing, portable computers, motion tracking and user-friendly software have been important in enabling practice on a wider scale, requiring lower budgets and a lesser degree of computer skills, which, as deLahunta argues, are appealing to artistic production:

> Analysing and modelling movement has been a research trajectory in computer science since at least the late 1970s; hence most of the algorithms are already in existence. But recent technological innovation, such as increases in memory capacity and processing power, has helped to put these approaches as instruments into the hands of artists (deLahunta & Bevilacqua 2007, p.5)

Such technological amenities are very significant in favouring the development of dance performance in cyberspace. However, the examples retrieved from the available literature (for example Carver & Beardon 2004; Dixon 2007; Birringer 2008; and Broadhurst & Machon 2009), or listed in dance and media festivals and regular

[3] I am using here "digital virtual" to emphasize that this kind of virtual is generated by a digitalization of the real and differentiate from uses of virtual that are employed in relation to ephemeral and body based arts. The different use of the words is further explored in the first section of Chapter 2.

programmes, show that a big percentage of the current artistic productions are created for real-time events where artists and audience are physically co-present, either in venues like theatres (as in the works of Troika Ranch and Obermeyer), and in fewer cases, in site-specific places (with examples by Kozel, Igloo, Jones and n+n Corsino). Dance artworks conceived to instantiate primarily in cyberspace are by way of contrast, as far as I was able to verify, both rare and dispersed.

In a text concerned with interactive dance and Internet, Birringer remarks that the early experiences with "Cyberdances" displayed on web-pages or immersive 3D virtual environments (as from those by Sharir or Igloo), which emerged in the 1990s were short-lived phenomena. For Birringer, in dance, the model of remote interaction secures the presence of the physical body because, at the time of his writing, "practitioners apparently want to avoid replicating the early euphoric predictions of the liberating potentials of cyberspace" (Birringer 2004, p.166).

A reading of Bench's work (for example 2006a; 2008) provides examples where choreography has been created for presentation in web-page format (such as the work of Lord or Silhol), but a survey of existing websites cross-checked with other publications shows that this sort of work, is scarcely represented in the terrain. Furthermore, many examples appear to be sporadic exercises with the medium, can only vaguely be inscribed in terms of a professional dance career (that is, they appear and remain experimental), or do not, as far as I have been able to discern, have a clear artistic intention.

The World Wide Web is established as a medium to inform, discuss and archive live practice or dance films (as the websites Dance-tech network or Siobhan Davies Replay exemplify); other approaches explore the Internet as a streaming channel to broadcast real time performance (for example, that of Stromajer or The Royal Opera House); the web is also a resource for choreographic research (e.g. Popat and Forsythe), or a medium for telematic performance in public events (as in the case of Company in Space and Birringer)[4].

A conference that I attended in 2011, in Bournemouth, provided me with a significant reality check. Although "the expanded stage" was a main topic, directed to discuss new spaces for dance, in the conference - "Digital Futures in Dance" - no panel or project included Auslander's concept of cyberspace as a venue; instead, practitioners and scholars showed a major concern with using the web as a tool for documentation

[4] Many of the projects referenced here are mapped in Chapter 2.

and analysis, developing generative software for choreography, or exploring interactive systems, sometimes with telepresence, for stage performance and site-specific installations. This sort of research, although updated at the conference, had nonetheless already been pursued ten years before by various projects signalled in the Cross Fair Conference (Birringer 2001)[5].

Rather than moving the physical into the virtual, artists in the dance-technology field appear to favour integrating the digital in their live/physical environmental projects. These findings indicate the importance of assessing whether cyberspace is compatible or not with the dance medium, because the technological process disrupts qualities that are essential to the discipline. As deLahunta pointed out "as a material the body in motion does not lend itself to digitisation" (deLahunta 2002a, p.66); for choreographers more generally, who come from a tradition of embodied live performance, the technology and display involved with new media are very different and present a major challenge.

Within the variety of works found, formal and methodological patterns have been impossible to trace; thus the designation of the objects I am studying in the present research undertaking will remain speculative and open, despite the effort of theorizing them. I have, on that basis, further explored the available literature in order to settle key concepts and identify the disciplines that have discussed them, keeping in mind the fact that as the present thesis has developed, the analysis of specific examples will be guided by those concepts and will facilitate their understanding in practical terms.

Theoretically uncovered

Considering the heterogeneous and interdisciplinary nature of my targeted field of research practice it has perhaps not been surprising to find a lack of strong connections with existing studies. The innovative cultural practices with which my research is

[5] I verified the absence of practice research and discussion of cyberspace as a venue for the performing arts in various other conferences that I attended. Information about these conferences, such as Chichester (2012), TKB (2013), Artech (2012), or DRHA (2014) is provided in Appendix 4. TKB was an interesting case because the speakers related to dance research, often stressed the critical role of the web as a showcase medium, world–wide accessible. Such acknowledgment however did not bring up discussions about the creative aspect underlined in this thesis and there they were only represented with my own paper, earlier published in the proceedings of ARTECH (Varanda 2012) . deLahunta was one of the speakers at TKB and although he agreed that my question – "why is this not being done?" - was pertinent he did not have an answer. Kirk Woolford, who was also there, sharing the panel with me, asked in return what did I mean by cyberspace? His question was an important alert about the need to clarify the understanding of this term. Woolford then added that while in the late 1990s early 2000's the arts policies were clearly encouraging projects that crossover dance and technology, the funding for that sort of work has nearly ended today. Woolford is a digital art and movement researcher with computer science training whose work I have come across several times since the early 2000s, namely with his collaboration with UK group Igloo or with individual projects such *Will.0.w1sp* in 2005.

centrally concerned have apparently not yet raised much interest within Dance Studies, which focus in the main on live performance and more recently, in the work of other scholars, dance films. In addition, the research that is available in the field of dance-technology is mainly undertaken from a practitioner's perspective, focusing on how new techniques and concepts may be used in the making process, and in line with the tendency to use the computer as a tool, bringing the digital into the physical.

Widely-referenced contributions for the consolidation of Dance Studies (Copeland & Cohen 1983; Adshead-Lansdale 1988; McFee 1992; Foster 1995; Thomas 1995; or Carter 1998) have taken important steps in the definition of the dance medium in theoretical terms and the development of practice analysis, both of which remain influential and resourceful for my own enquiry. However, dance represented in media forms is barely addressed by these authors. This lack of representation naturally mirrors a gap in practice: dance films have only gained the status of autonomous artistic discourse, from the 1990s onwards[6], with regular production, public appraisal and institutional response; new media dance is even a more recent subject. But I would also argue that scholars in the field of dance studies may not be well equipped to interpret dance performance in cyberspace; it was even disappointing to read in a book devoted to "significant choreographic concerns of the first decade of XXI century" (Butterworth & Wildschut 2009, p.1) that film, TV or internet approaches to choreography had been excluded, except when they were an integral element in a live event. Recent philosophical undertakings (as in Louppe 2010; or McFee 2011) and cultural studies (such as Thomas 2003; Lepecki 2004; or Foster 2011) are still based in the circumstance of the ephemeral and 'collective' dance event.

The literature focused on dance films has developed considerably in the past two decades and is well represented by various sources (e.g. Jordan & Allen 1993; Dodds 2001; Mitoma 2002; and McPherson 2006); and transfer and transformation processes discussed in relation to dance films are relevant to other forms of media dance. However, while films are finished products new media dance is interactive. As Auslander (2008 [1998]) and Rubidge (2002) have argued before, and Bench reinforces in her writings about web-based dances, interactivity "brings the question of performance back to the screen" (Bench 2006, p.91). Studies focused on dance films fail to address the implications of audience participation, which are central to new media dances.

[6] The research made by Whyte (2007) provides a comprehensive historical account of this development.

Conceptualizations of performance that are updated with the development of multiple media and the technologies of reproduction, often grounded in the examination of artistic practices, are found in the fields of Performance Studies, which intersect, I would argue, more fruitfully, with visual arts, media studies, computer science and philosophical discourses. The issues, models and disciplines therein addressed are nonetheless quite broad, and eventually they lack the specificity of my interest in dance. Theatre and performance art are commonly involved and in many cases the discourse of hybridity prevails: the innovation and expansion implicated with digital technology associates with the dissolution of disciplinary boundaries.

Broadhurst's various collections of essays with Machon (2006; 2009; and 2012) gather insightful readings that help characterize new artworks, which use media technology creatively and that earlier on Broadhurst has identified as liminal performance: "traits that are central to the liminal are indeterminacy, fragmentation, a loss of the auratic and the collapse of the hierarchical distinction between high and mass/popular culture" (Broadhurst 1999). However in the several contributions that address engagements between dance and computer technology I did not find other examples enquiring about cyberspace than the one I have later selected as case for study[7].

Dixon's seminal study importantly validates the term "digital performance" (Dixon 2007); he includes a section about "online performance" and discusses electronic games, role play and the performers enacting process, but that insight is from a theatre perspective that follows text-based narrative and character play. Thus only a few relevant issues from Dixon can be adapted in the present project.

Birringer (2008) comprehensively reviews the epistemological research that performing arts experts develop when they use digital technologies, highlighting its scientific value; but his bond with the dance-technology field[8] is compromised, in my view, with a paradigmatic stance that "the crucial incursion of the visual arts (and visualization technologies) into performance has in fact made older disciplinary separations redundant" (2008, p.xi). Birringer's position here does challenge my determination, in the present undertaking, to maintain dance as a disciplinary frame in order to address this new area of knowledge, and argue for its importance: the quality of dance performance still seems to me to be key in the works that interest me.

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[7] See Chapter 7, Boddington writing on telepresence and virtual bodies.
[8] Birringer is himself a member of the 'dance-technology' community and a prolific writer in this area.

The debates found in new media studies about cyberspace, the associated cultural context and related artistic practices, have had a significant informative and encouraging effect for the present project. In *Remediation* (1999), Bolter and Grusin describe the conversion of older media into newer ones, and this concept is key in the design of this research undertaking as far as dance is concerned. Manovich (2001) substantially analyses what differences affect process, dissemination and the experience of new media; and Popper's study concerned with virtual art (2007) is a noteworthy example of a review of practices where artists pursue a double logic to make their work, which is "based on the combination of current technical and aesthetic issues" (p.2).

However, these theories are mostly engaged with visual arts, sound art, literature, or cinema, which are all previously mediated practices. Manovich is unequivocal: "I analyze the language of new media by placing it within the history of modern visual and media cultures" (Manovich 2001, p.8); and Popper's concept of techno-aesthetics lacks the disciplinary perspective that is crucial in my own study. Hence the primary need I felt to understand where the mediation starts from in dance could not be clarified by these writings. In order to address the process of transfer and transformation, in both conceptual and practical terms, it is essential to assess what medium means to an embodied art form like dance.

One realization from the review of new media studies was that the work of professionals who are historically associated with live performance, and - particularly relevant to this research - with dance performance, is generally absent. Despite the growing interest in embodied interactivity, self-through the body representation, telepresence and the moving image, the disciplinary divides have not disappeared, as statements from Birringer or Broadhurst have suggested. My perception, therefore, was that engaging with these sources could have a bidirectional effect, expanding the understanding of dance and expanding the understanding of the relationship of humans with new media.

1.3 The dance piece as internet art or cyberspace performance

What is essential to justify this research undertaking is the existence of concrete examples that the study might focus on. As Fraleigh has pointed out, and may still need to point out, "dance research is about dance" (1999, p.2), so the presence of an objectified product (a piece, an artwork) was necessary to ground the research in a

concrete and specific result of human activity. However, defining these products theoretically was not an easy task.

The preliminary auscultation on this field confirmed the possibility of using cyberspace as a venue, as Auslander suggested (2001); but that same review showed that the works can 'objectify' with a variety of media interfaces, pursue different functions, and involve the audience in several quite different ways. Furthermore, the terms available to theorize these practices are contingent to the disciplinary perspectives that use them and to the fast advancement of the technologies that enable the objects to take form and relate with potential audiences.

Given these considerations, choosing one single model – as for example dance works for web-page display, which affiliates with Internet Art - seemed reductive for a field that is ongoing in its creative advance alongside technological viability and conceptual development. On the other hand, I had the clear intention of advocating for a dance-specific mode of enquiry in the context of cyberculture, thereby counterbalancing discourses of hybridity and dissolution.

Although in the long term this project and this particular orientation were rewarding, it became frustrating to have regularly to explain to friends, colleagues or supervisors, what was the object and subject of my research. Many times I was only successful in explaining what it was not.

In the mid 1990s Thomas pointed out that dance did not yet have the deserved attention of sociology as a significant cultural practice, and that was a reason for her peers to find her research subject unfamiliar. In the following statement, if we replace "sociology of dance" by "dance in cyberspace", her words could very well be, nearly twenty years later, my own:

> When people ask me what my research area is and I reply, 'the sociology of dance', their usual response is, 'mmm … interesting … how unusual …', accompanied by raised eyebrows and a quizzical look which implies, 'What is it and how do you do it?' When I go on to explain that my research is in performance dance they are even more nonplussed (Thomas 1995, p.1).

Qualitative and technological delimitations

Identifying the limits of the field wherein the study would develop was essential to determining the corpus rationale and narrowing the subject of the research. To ensure the specific qualitative distinction that I was aiming for in this study I decided to set preliminary conditions for these 'human manifestations': a) they are intentionally

produced as artistic practices; b) they have characteristics that enable them to be considered dance; and c) they are implemented by qualified professionals with expert skills related with the other two criteria. A second group of conditions was chosen in order to highlight the technological distinctiveness of these practices: d) they operate with new media principles[9]; e) they instantiate in cyberspace that they use as a site for creative practice; and f) they enable interactive exchanges between artwork and audience.

By assembling these six criteria in two different categories - the discipline qualitative and the technological specifications - I have achieved to draw an outline for the field where dance performance in cyberspace is localized (fig.1:1). From there I could proceed with the choice of objects and events for analysis and sources to theorize them. While this frame remains open to existing practices or those yet to come, which I might have not considered here, it is nonetheless explicit: the practices should, in any case, correspond cumulatively, in their own way, to these criteria. However, these terms refer to concepts that are interpreted and used differently, depending on disciplinary perspectives, technical specifications and temporal periods, as the review in Chapter 2 indicates. Hence this procedure required considering the extent to which unstable concepts may jeopardize the efforts of delineating a field.

If this project implies studying artworks that operate 'inside' a borderless 'space', which is a recent and metaphorical construction, in order to consider cyberspace as a venue, the concept must be further understood: What does cyberspace mean and for whom? In which ways can it be used? I realized, for example, that online interaction is not commonsensically implicated: when I use the expression 'performance in cyberspace' often people imagine users – qualified performers or not - engaged in a real time creative or playful exchange that is enabled by computerized representation and internet connection, possibly, but not mandatorily, converging in cyberspace. Such an encounter may be transmitted in a physical venue in the same model of the conventional public event, or remain confined to a virtual environment within the network, that is accessed from a private domestic space. Manovich's notion of navigable virtual environments (introduced in Chapter 2), is clarificatory for artworks that use cyberspace as a venue, accessed either from private or public portals.

Interactivity is also addressed differently in different contexts, reflecting choices in product design, which in turn define how the audience participates and interferes with

[9] As they are explained by Manovich (2001), and which I introduce in Chapter 2

the artworks. For some scholars and practitioners, interactivity is synonymous of audience participation while others focus on communication between professional dancers. If I were to adopt computer-mediated communication between users as a leading defining principle of dance performance in cyberspace, then the major subject of my study could instead be a social activity, in terms of the ways that cyberspace could enable a collective dance experience[10]. The specifics of the present study required examining different perspectives about interactivity, both discussed theoretically and developed by practitioners.

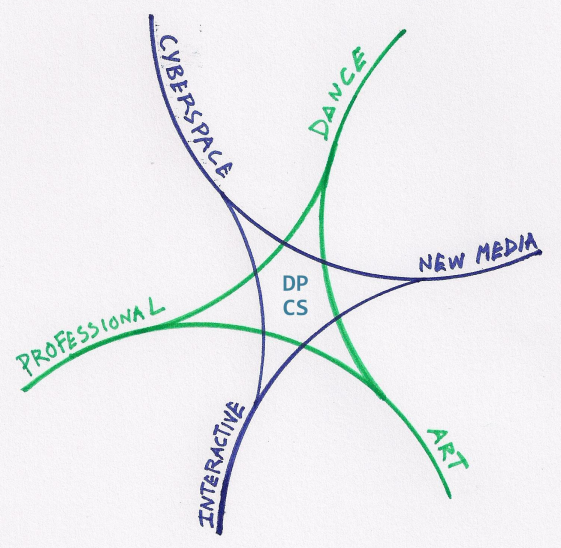

Figure 1:1 - two groups of criteria juxtapose to delineate the research field

Conflicts emerging from juxtaposing the two frames

The technological criteria similarly challenge the characteristics indicated by the qualitative triangle. If the audience members/spectators/users become active partakers, will they actually dance? On which grounds can we claim that the works are part of professional practice? If many of the tools that enable making and participating are available to a wide number of users and producers, what relevance does the qualitative framework have? This is not a specific problem of the dance work as Wilson's study focused on 'information art' demonstrates; when contemporary arts intersect with digital technologies the idea of "timeless masterpieces", Wilson remarks, is

[10] For example my supervisor during 2012, Ralf Nuhn , found this enquiry interesting because of its potential to enable a remote interactive and creative relation in cyberspace, based on somatic and aesthetic experience, rather than the making of a medium-specific artwork lodged somewhere in a server.

compromised with the tendency of borders, which confine disciplines, authorship and artistic discourse to permeate other domains (2002).

In the way the World Wide Web was conceived during the 1980s (Berners-Lee 2000), cyberspace is open for occupation, available in principle to whoever wants to be 'there'. With the increase of accessible software more people can create web-pages, mobile apps and game engines. Given this availability of tools and free access to the venue, if humans are creative by nature, how can we claim that one manifestation is artistic and the other is not? These are the arguments that substantiate Wilson's remark and that postmodern thinking has called attention to; as Broadhurst observes, "the features of liminal performance display a close affiliation to the aesthetics of postmodernism" (1999, p.13).

It is a paradox that contemporary and interdisciplinary artworks need a validating institutional framework in order to be acknowledged and valued as expert practices but the institutional is normally detached - certainly this is the case for the Republic of Dance (McFee 1992) - from new areas of artistic research and development. Hence creative makers of new media objects, even though they may not have the skills of a choreographer or a dance performer, can designate these activities as dance; or these works can be valued for their enquiries on dance practice, as I found in some texts from Bench (2006a; 2009b).

Arguably works that correspond to the criteria here determined often involve mixed-expertise teams; instead of a leading role the dance expert may have a consulting position, but his or her position in the conception and realization of the work, I argue in this research undertaking, is determinant in the result. Moreover, although the artwork is open to improvised participation, the relevance of having a qualified team directing the work can be defended. These are aspects to assess within the analysis of existing practice.

For Melrose (2009) "expert-practitioners" are essential to define a disciplinary field and ensure professional production values, which not only guide the outcome and signature of the creative endeavours but equally influence the way they are received and appreciated: "the name of the choreographer, at least, tends to be a token of cultural exchange: that name figures, one might say, in the models of intelligibility specific to its practices" (p. 24). Melrose's association between expert and discipline resolves, at least in part, my concern with maintaining dance as a framing concept. The expert or professional criterion is also relevant to address dance practices comparatively and

observe how conventions can transfer across different environments, generating specific approaches that inform other fields of enquiry - such as those related to new media studies and cyberculture. In addition, insisting on artistic determination differentiates the objects of dance performance in cyberspace from other practices, which may be expert-led and dance-driven, but explore the archival and educational functions of new media[11].

Despite the remarks presented here, which indicate the difficulties of applying a speculative conceptualization, my survey on empirical materials and theoretical formulations supports affirming that technically, dance performance can happen in cyberspace according to two major models: 1) as a telematic interactive encounter mediated by an electronic network, between expert or informal performers that remotely construct the artwork, which is broadcast online in real-time; 2) an automated composition prepared to respond to the action of a user (who starts and commands structural progression of the artwork), and that integrates the effect of such participation in the resulting aesthetics.

When, where and who?

Time and space limits that confine the research in geographical and historical terms derive from the application of the qualitative and technological criteria and from the possible outreach of my own position as a researcher immersed in practice: I am a specialist in contemporary dance, my training and professional development happened within a European context, and I have a time limit set by the circumstances of a doctoral undertaking.

The artworks that reflect the above constellation of criteria are organized on a timeframe delineated by the technological scenario – following the development of portable computers and electronic networking - and by the record of dance artists engaging with it (the results indicate the first being from 1996). They can be encapsulated in a 20-year period between the early 1990s and 2010s, eventually extending to 2013, which is the time-limit established by the end of the field work undertaken.

Since these practices are located in cyberspace and may involve international on-site collaboration, nationwide borders and cultural background are harder to trace

[11] As exemplified by the works of Forsythe, Siobhan Davies and Popat, which are also mapped in Chapter 2. If the central research question of this thesis had been directed towards the relationship between the World Wide Web and movement analysis or remote collaboration, these projects would have had primary importance as the focus of analysis

objectively. To ground the field geographically I considered the origin of the artists (where do they live and work?), and my own position as a limit to my outreach. Thus I focused on a western territory (Europe - UK, France, Portugal – with ramifications to the USA and Australia[12]), defined by complicities established in the real world, which allows me to proceed with a specialized gaze. This is, in that sense, a research within the 'known', instead of an incursion into a foreign territory. Hence for example, the productions of artists based in Japan or India - countries where technological development and its influence on contemporary culture are happening differently from the European reality - were out of the possible reach of this research.

1.4 Conceptual, methodological and ethical approach

Outcomes of this research are expected to lie in the field of Dance Studies, providing a theoretical characterization that enables us to locate, analyze and contextualize a marginal area of contemporary artistic practice and demonstrates how performance and new media studies can be fruitfully engaged and possibly enriched. I have adopted an array of research methods in order to facilitate a cross-disciplinary dialogue between sources of the literature that contribute to understand what dance performance in cyberspace may be, and analyze practices that bring forward the evidence on how such speculative category can take form and relate to the culture it is part of.

Migrations between live and digital territories

Because mediation through digital technologies is involved, for representation and exchange, with desired audiences (the others), dance performance trespasses upon the threshold of its habitual live and physical territory and migrates into the territory of virtual electronic environments.

I propose using the notion of migration as a tool to understand the process through which the art of dance transfers - from a live experience of the flesh and blood body - to the abstract space of connected data in cyberspace. The extent to which this dislocation dissolves the identity of dance and its intrinsic performance attributes, possibly leading to extinction, is a problem under inspection, informing the choice of research strategy, methods and sources engaged.

[12] Because some artists participated in key events in the UK or institutions have hosted conferences and scholarly debate, some sources in the literature extend to Australia, where several artists have worked with technologies in quite innovative ways.

In computer sciences the term 'migration' is used differently, to refer to the copying of data from different appliances, or the passage between different software and servers; in this process any change in the original data is a corruption to be avoided. I, on the other hand, consider that identity changes in the art form occur in a similar way to those that are involved in a process of geographic human migration, inevitably a cultural migration, when a person moves to a different country or a different environment within his or her country.

When developed in the frame of expert practice, dance performance in cyberspace necessarily relates to other dances made in what was originally its physical territory; dancers and choreographers are trained on real environments and on the basis of embodied expression. The notion of discipline, I argue, remains pertinent to hold on to, and discipline associates, as Melrose makes clear, with expert specific skills. However this complex migratory movement has consequences for production, presentation and conceptualization; thus the connection with other areas of knowledge is implicit in the conceiving and making of the work and essential to understand this new field in both practical and theoretical terms.

Position of the researcher – from practitioner to spectator

Because I am a dance practitioner whose profile includes the position of a dance theorist through my work on dance analysis and criticism, my research ethos converges often-separated perspectives. In the exploration of cyberspace the practitioner would pose pragmatic questions regarding method and result: how does this opportunity work from an artist's perspective? Having practical knowledge in dance and in digital technology, I have considered, at an early stage, developing a practice-based research with emphasis on the making process. The enquiry about transfer and transformation would thus be undertaken from an inside perspective; substantial field-work to inform my thesis could be provided; and this option would attenuate the difficulties of delineating a field to search for examples; moreover, the issues about representation, which derive from the interpretation of other people's work, could be minimized.

However, such a perspective 'from within' (i.e. 'immersive') would have distracted my attention to examination of the existing and potential field, thus reducing insight into the subject and the reflection on the lack of definition, discourse, acknowledgement and critical appreciation that I perceived to be at stake in the original project. Assembling theoretical approaches that can frame these phenomena and providing in-depth analysis of practice, seemed a much more relevant contribution to

the field or fields. Other scholars such as Birringer (2008) and deLahunta (2002c) have also pointed out that further examination and critical appreciation is needed in the 'field' of 'dance and technology'.

Although abandoning the practitioner's perspective, I remained a researcher sympathetic to that subjective position, trying to understand the object from within and to make sure that the artists' voice is represented. By assuming the position of the expert observer, I nonetheless aim towards objectifying the elements considered, focusing on aesthetic analysis and evaluation, which together shift my goal towards generalization and legitimization. Identifying aesthetic value is essential to support further development and, since artists tend to articulate cultural values in their works, inspecting what they say or show, and how they do so, is a form of philosophical enquiry, feeding speculative reasoning about what humans are or can be today.

What follows from the perspectives I have outlined this far, is the observation that in this research undertaking I am moving between subjective and objectifying perspectives; I am an outside interpreter but I am likely to be able to understand the practices from the subjective perspective of the practitioners who make them. Therefore in what follows I propose to explore a number of methods, some objectifying and some tending towards the subjective.

Research methods and design

This qualitative enquiry explores fairly recent possibilities of practice development and discloses the complexity of a new environment – both technical and conceptual – that we seek to understand and contextualize through the interpretation of existing artworks. The research pursues a pragmatic orientation since the application of the resulting study for the community of dance professionals is a driving intention of this enquiry and multiple and sometimes divergent views are used to tackle identified problems.

The mixed nature of the proposed object – dance presented in a digital interactive environment but originated in a performing arts field of expertise – requires engaging a set of multidisciplinary sources which I have indexed under three different categories: New Media, Performance and Dance Studies. Within these categories, philosophical, sociological and technological perspectives contribute with different types of information to an understanding both of the context where the subject of the research takes form, and how the concrete practices operate within – technologically (how are they made, how do they work?) and aesthetically (what do they produce in

terms of form, meaning and experience?). The use of published writers in the chapters that follow is notional, rather than exhaustive, because I borrow from their contributions in order to address a new knowledge area.

The research design is based on a case study approach, and the cases are studied with what Stake (1994) calls intrinsic and instrumental interest. While detailed understanding of each case satisfies the purpose of characterization and evaluation, the selected cases also provide insights into issues raised by the context of cyberculture. Case study analysis has also required considering suitable methods to examine these practices: can we use older models or do we have to devise new ones? Is one single analytical model applicable to different works, or does each work require its own analytical model? These questions justified my investment in a contribution to knowledge that is also of a methodological kind: developing a customized method for expert viewers to analyze these practices.

The persistent ongoing enquiry and distinctive quality of the work undertaken by three groups justified my selecting them as referential practitioners. Although other practices are referred to throughout the thesis, the systematic study is made on works from Cie. Mulleras and n+n corsino (both from France) and Joseph Hyde with Body>Data>Space (UK). These artworks are contemporary to the course of the present research undertaking (they were made between 2007 and 2012), and represent different models of interface and interaction: *96 details* is a web page composition, *Soi Moi* is a mobile phone application, and *Me and My Shadow* is a telematic installation.

1.5 Encourage practice and theoretical engagement

This study intends to facilitate identifying and acknowledging new composition and instantiation paradigms that may increase audience outreach and career opportunities for the field of dance. But I also argue in what follows that contemporary dance experts can bring, through their artistic enquiry, sensorial and emotional experiences as well as new critical perspectives to a wider community, pursuing a "techno-aesthetic commitment", which Popper identifies in virtual art makers (2007). The trend of disembodiment in cyberculture can to some extent be attenuated: as Katherine Hayles remarked in her theorization of post-humanism, "information has lost its body" and with life mediated by computers she adds "embodiment is not essential to human being"

(1999, p.4). By using cyberspace as a venue, I would argue, dance practitioners can essay a different direction to these early perceptions.

In addition to the notion of research impact introduced above, I foresee this research undertaking making a contribution towards interactive design, given the particular ways dance artworks display digital content and seek to engage the user in aesthetic experience. These expectations align with Shusterman's proposition that a 'somatic turn' is required for interactions between humans and computers, to find in the body a defence against the rapidly changing society of information and oppressive media advertising (Shusterman 2000); similar convictions have also been determinant in the practice research developed by dance scholars like Schiphorst (2008) and Kozel (2007) - as the latter's statement indicates, regarding a recent study about mobile phones and social space:

> Then we, as dancers and choreographers, set our bodies in motion in order to understand, to celebrate, to critique or to affirm that things can indeed be otherwise. We build these ways of thinking and knowing through our bodies within a changing world (Kozel 2010, p.138).

My enthusiasm for these challenges was genuinely concerned with stimulating the inclusion of my professional field in a wider cultural domain, instead of keeping away from it as 'pure research/ers' might prefer. These were the intentions that in 2008 encouraged my embracing the effort of long-term research and, although my engagement was largely intuitive at that time, they have meanwhile gained theoretical support. Throughout this research journey I have found a comforting reassurance to proceed with the mapping of theories and practices that could give an account of existing knowledge on the subject and promote a more detailed discussion of the implications involved. Sharing Kozel's claim that getting involved is needed (as the above quote suggests), we might want to follow Carter's advice that "close examination of a specific dance can position it more securely as a culturally significant activity or support claims for its place on a continuum or as innovative practice" (Carter 2008, p.21).

With description, classification, contextualization, and interpretation, which are operations that enable us to support arguments for evaluation (Carroll 2008), I propose to find the means to confirm, specifically in relation to dance performance in cyberspace, Dixon's confidence that:

> (…) the conjunction of performance and new media *has* and *does* bring about genuinely new stylistic and aesthetic modes, and unique and unprecedented performance experiences, genres, and ontologies (Dixon 2007, p.5 author emphasis).

1.6 Thesis chapters outline

Following this introduction (Chapter 1) where I have outlined the main subject, questions, issues, objectives and methodological approach which I propose to develop with this research undertaking, Chapter 2 locates the field that this research operates in with a review of published literature and established practices. I demonstrate there how the sources bridge over a range of topics, I will discuss terminology used to delineate the field in terms of technological criteria, and emergent issues that arise when new media and performing arts intersect in the context of cyberculture will be highlighted: fragmentation, human computer interaction, affect, disembodiment and dissolution. Publications that report and assess the relationships between dance, the computer and cyberspace are engaged here with the purpose of contextualization; and the expert dance practices that offer a referential background for this study are introduced. I conclude by pointing out a number of subjects that seem to have been widely overlooked and I try to identify where this research undertaking can contribute a new approach.

The choice of research methods and modes of engagement with the subject is developed in Chapter 3. I justify my proposal to use the metaphor of migration as a conceptual tool, which supports the interdisciplinary theoretical dialogue that has informed an inductive approach and a case study research design; because I pursue a constructivist agenda to expand the application of existing Dance Studies, I will also review previous research in dance and performance that frames and informs my own study. A longer section is dedicated to describe the method devised to analyze the artworks determined as case studies, which is related to their technological specificity and the aims of aesthetic evaluation. There I review the theoretical writings and conceptual approaches that have informed the overall strategy, discuss the parameters applied in the analysis, and clarify the criteria to sustain my evaluation: practical remediation of the dance medium, the experience provided to the receiver of the artwork, and the connection with emergent themes of cyberculture.

Chapter 4 provides a theoretical discussion regarding the migration process when cyberspace is used as a venue to present the dance work and the issue of how that choice of venue affects the nature of dance itself. The debate focuses on the constituent elements and attributes that dance is identified (in published writing) to consist of,

including body, movement, performer and choreography. From this list of components, I discuss how they can transfer to interactive works and adapt to instantiate in virtual environments. This undertaking in Chapter 4 implies a revision of the terminology that suits this mode of discussion. Hence, for example, I explore the meaning of the word "medium" and review how the notion of the "performative" is widely applied to digital performance.

The three Chapters 5, 6, and 7 are dedicated to the separate analysis of each case study: the works of Compagnie Mulleras, n+n Corsino and Joseph Hyde. Although providing background information about these groups, the chapters focus on the analysis of three particular artworks that represent different approaches to dance performance in cyberspace. To accomplish the overarching function of finding correspondences and innovations in the selected practices, this analysis is concentrated in three main topics that guide several parameters for observation: the constituent content elements of the artworks, their thematic focus, and the nature and extent of interactive exchange promoted with audiences. The research outcome should be able to be tested in relation to a further set of questions that are research-methodological in implication: 1) Was there clear demonstration that consistent working processes and resulting artworks exist? 2) Can such artworks qualify as professional dance practice and bring innovations to this field? 3) Is the argumentation provided sufficient to counterpoint the perceived reasons for this area of research to be poorly represented? And 4) Does this analysis support the claim that these practices may also contribute towards the study of cyberculture and new media?

The conclusion in Chapter 8 readdresses the initial research questions that guided this study, evaluates the efficacy of the chosen methods to achieve what was proposed, and summarizes the generalizations that this research undertaking authorizes me to do regarding my subject. Throughout this process of highlighting research findings the contribution of this research project in the fields concerned, particularly for Dance Studies is also identified.

The Appendixes 1, 2 and 3 are related with the cases studied and include interviews with the practitioners and informative materials about their work. In Appendix 4 I provide a list of attended conferences with a summary of contents, event programs and paper abstracts.

2 Chapter 2 - Mapping concepts and expert practices - onto a literature review

The sources that provided an essential background to contextualize the study of my research subject are introduced in this chapter. In order to attend the 'double-nature' of the object of study - a body art expressed in digital media – and pursue the purpose of evaluating artworks, I engaged with a multidisciplinary group of writings, organized in three major field-categories: new media, performance and dance[1].

The literature is rich in references that mark - temporally and geographically - the development of digital technology, new media and electronic communication and that connect them to emergent issues about cyberculture (as defined by Lévy 1997)[2] or digital culture (as named by Gere 2008 [2002]). These writings provide precious accounts of the technologies themselves and how interpretations of artistic thinking have questioned and extended them.

The management of sources in New Media Studies was restricted to key references that introduce technical, cultural and epistemological implications at stake; I have resorted to authors such as Bell, Bolter, Grusin, Gromala, Dourish, Hansen, Hayles and Manovich. Texts from Paul, Greene and Popper offer an overview of practitioners who invigorated genres such as digital art, Internet art and virtual art.

In the Performance Studies-related field I confined the reading to leading voices that clarify the use of the term 'performance', identifying components and attributes and, in most cases, they address convergences between the digital virtual and the physical; authors such as Schechner, Phelan, Melrose, Auslander, Dixon, Broadhurst and Birringer answer many questions and identify important issues in practice-based or

[1] To support a demarcation of the scope of action and core concerns of these areas of study I used the following references: New Media (Manovich 2001; Bell 2006a), Performance (Schechner 2002; Auslander 2007) and Dance (Carter 1998; Carter & O'Shea 2010; Fraleigh & Hanstein 1999).

[2] The years 2010 are characterized by another new term: cloud culture. This notion follows the terminology promoted by mobile phone and portable computers advertising companies, implicit in the idea that we can leave our data in the cloud and share it with anyone or access it anywhere. Cloud computing principles and effects in contemporary culture are presently a common subject of computer studies (Antonopoulos & Gillam 2010; Lockwood & Coley 2012). I find the cloud a very interesting metaphor because it reveals the faster, handier access to your data, a sense of proximity and banality that differs from the much more remote and sci-fi imaginary notion of cyberspace. On the other hand the digital was a more much technical down-to-earth term, which the cloud sort of redeems. Bell provides a good discussion regarding some of these different terminologies, explaining why cyberculture seems today an outdated term and what are the fields of scholar inquiry that may congregate within the umbrella term of cyberculture studies (Bell 2006a, pp.3–5 vol.1).

practice-led research. Schrum, Giannachi, or Carver and Beardon, provide studies on theatre and new technologies, which helped understanding features that are common to dance performance in cyberspace and features that are not.

Because dance is the strongest frame of my enquiry, comprehensive coverage was prioritized to texts located within the boundaries of the discipline. Although the foundations of Dance Studies did not develop alongside new media artworks, a generation of younger scholars has pursued discipline-driven approaches to computer technology, which reflected in significant increase in publications and diversity of subjects over the last 15 years. This work, I argue, must be acknowledged as a branch of dance theory, despite affiliation with other disciplines.

Explicit moments and landmarks enable us to trace pioneering steps and expert discussions in the so-called dance-technology field; authors such as deLahunta, Birringer, Kozel, Schiphorst, Gray, Corin, Rubidge or Dodds contributed strongly to that mapping. The study of new media dance artworks is less developed and, apart from Bench, Fildes or Popat, few authors address cyberspace as a venue for production and dissemination. Other studies about the network concern archival and generative opportunities for live performance, as we see with Whatley and deLahunta.

In short, this literature review was structured to 1) clarify the technological frame of criteria; 2) detect issues of wider significance for performance in cyberculture; 3) report studies and practices that tell a story of affairs between dance, the computer and the Internet.

2.1 Clarifying the technological frame: cyberspace, new media and interactivity

The writings that study the phenomena of ubiquitous computing, focusing in either technological or cultural issues[3], are normally informative as well about the topics to discuss herewith. The widespread use of digital technologies touches numerous domains of human activity; hence many subjects, methods and disciplinary approaches cross over. This literature, today abundant, has proliferated since the 1980s with the development of desktop computers and Internet, and this review could only touch a discrete part of such a rich field, which is developing rapidly and on many fronts. For my position as a dance professional and researcher, these sources were essential to

[3] While in computer sciences these aspects are studied in terms of how the technology works in social sciences and the humanities they are studied in terms of how do they change human-beings. I am using culture as an umbrella term to encompass a wide variety of qualitative research approaches.

understand histories, technologies and concepts of a field that was new for me and that was the focus of my readings.

Bell's critical reader (2006a), accounts well for the diversity of issues, fields of inquiry and methods, by reprinting 68 texts of major referential authors and ideas originally published between 1991 and 2004. Bolter and Gromala's study of digital arts and interactive design provides a short history of how the computer transformed from a calculating machine to become a medium in itself in the 1990s (2003, pp.15–22). Other sources have sketched genealogies that explain the cultural context determined by computers and new media: Gere (2008), traces the origins of digital culture back to numerical computing in the 1930s; Bolter and Grusin (1999), situate new media in relation to older media; Manovich (2001) instructs how the computer screen evolves across conventions about representation; and Dourish (2001), reviews human-computer interaction, from graphical interfaces to tangible and social computing.

The terms and concepts used in new media theory have firstly appeared in studies on computing, televisual media, cyberculture and visual arts[4]; but scholars in the performing arts sector have meanwhile supported, extended or challenged these discourses when the arts of the body – such as live art, theatre and dance - have assimilated digital technologies for aesthetic development.

What do you mean by Cyberspace?

In the opening of *The Cybercultures Reader* Bell characterizes cyberspace as a "technocultural construction" that may only be broadly defined (Bell & Kennedy 2000, p.1). Gibson coined the term to describe the product of a "consensual halluciation" in his science fiction novel *Neuromancer* (1994 [1984])[5] and the imagination of the regards of cyberspace, Bell remarks, was henceforth strongly influenced by Hollywood movies[6]. Since then cyberspace has become a common term to refer to a public metaphorical place where objects and identities exist virtually through symbolic forms and meanings, without any other materialized reference than the hardware that facilitates its existence (Bell in Bell & Kennedy 2000).

[4] I have joined these three possible fields together in the single group called 'new media"; this strategy of classification will be discussed in the next chapter regarding research methods.
[5] Gibson coined the term from the scientific work of Norbert Wiener in cybernetics,
[6] Bell gives the example of films such as *The Terminator*, *Robocop* or *Blade Runner*, while Manovich points out that cyberspace was already expressed in *Tron* (Disney 1982), which takes place inside a single computer.

In 1991[7] Benedikt described cyberspace as the reflection of a new stage of human development, where culture and business are driven by computer technology; an acient and immaterial collective memory was therefore becoming "uniquely visible and the object of interactive democracy" (Benedikt 2000, p.30). Other authors have a more pragmatic perception, I would argue, and in *Mapping Cyberspace*, Dodge and Kitchin (2001) discuss the concept with visualizations based on real data coming from the network, from which new world cartographies may be drawn[8]. In *Internet Art*, Greene reengages with the term metaphorically to address the influence on the technological construction in cultural life: "Both everyday and exotic, public and private, autonomous and commercial, the internet is a chaotic, diverse and crowded form of contemporary public space" (Greene 2004, p.8). These understandings of cyberspace are theoretical responses to the development of the Internet as a global communication network, accessible to general commerce.

Lévy, in *Cyberculture…* considers cyberspace as "the communication space opened by the world-wide connection of computers and data memories" (1997, p.107). Communication consequently became characterized by a number of distinctive possibilities that Lévy outlined as: access to remote files and file exchange between distant places; electronic mail and electronic conferencing; shared virtual space as in chat-rooms or multi-user game platforms; and navigation through hyperlinks that display information in multiple ways through the network.

Gibson's imagined dystopian future is quite different from our present, but his term remains appropriate: despite the interfacing screens, keyboards, webcams, and wires, with the World Wide Web people can exchange the very personal between private spheres; this increases the perceived 'realness' of the information 'world' connected by electronic wave signals. Its creative and reflexive potential has thus surpassed the informational service that motivated Berners-Lee, the web's inventor, in the early 1990s[9], and the numbers speak for impact on a global scale[10].

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[7] Benedikt is here referenced from the text in Bell and Kennedy's collection, but his text was originally published in 1991, in his own collection of essays *Cyberspace: first steps* (Benedikt 1991).

[8] See in http://personalpages.manchester.ac.uk/staff/m.dodge/cybergeography/atlas/topology.html [accessed 5 December 2014] several cartographies by Dodge.

[9] Cultural and New Media studies, Critical Theory and other disciplines have discussed the impact of this virtual reality - one that is latent within a data system until activated or perceived by humans. See for example (Bell & Kennedy 2000; Featherstone & Burrows 1995; Gere 2008; Lunenfeld 2000; Turkle 1996; Haraway 1991). It was not feasible to approach in depth those implications here and so I avoided providing an overview questioning critical issues. Some questions though, appear during practice analysis in dedicated chapters and the Conclusions chapter.

[10] According to the statistics provided by ITU-D (United Nations agency) between the year 2000 and 2013, the percentage of Internet users in the UK increased from 27% to 90% of the population; in

Millions of people from different parts of the world are feeding into the online sites and databases; the unstable and heterogeneous definition of cyberspace is therefore justified in part by continuous and unpredictable feeding. Benedikt emphasizes the idea of an expanding space, which "depths increase with every image or word or number, with every addition, every contribution, or fact or thought" (2000, p.30). Lévy points out that research and development is oriented to "transform cyberspace in a single and immense virtual world, infinitely variable and forever changing" (1997, p.126).

In cyberspace, Bell asserts, we are "making ourselves over as data, as bits and bytes, as code, relocating ourselves in the space behind the screen, between screens, everywhere and nowhere" (2000, p.3); as such, questions about truth and indentity emerge: "who are we when we are in cyberspace?" Bell asks (idem, p.3); in order to engage intimatly and emotionally with the experience of simulation people changed their relationship with the computer interface and, consequentely, their experience of embodiment and subjectivity (p.4)[11].

As a product of electronic and online networks cyberspace was enthusiastically approached by scholars and professionals interested in its potential for theatre education and production. In *Theatre in Cyberspace*… Schrum (1999) gathers early testimonies[12] about online performance space, role-playing with digital doubles, interactive narratives and the participant audience with text or computer graphics and multi-user domains. These experiences aimed to extend Laurel's notion of the 'computer as theatre' (1993). Lenoir's text is revealing of the implications of representation in cyberspace, which, I would argue may most disturb dance practitioners: "In MUD acting, signification still occurs, but the performer and the actor – the embodiment of the action – are now divided[13]" (Lenoir in Schrum 1999, p.194).

The hardware and software that enable self-representation, social interaction and the way the artworks can be presented can also determine what we mean by cyberspace[14], as Greene recalls: the computer "can take the form of a laptop, a cellular phone, an office computer – each with its own screen, software, speed and capability – and the experience of the artwork changes accordingly" (2004, p.8). To the hardware variability I would add that different degrees and quality of access to broadband signal

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Portugal from 16% to 62%; and in France from 14% to 81%. See the full international chart in http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx [accessed 27 January 2015].

[11] This was particularly true in the 1990s, when these technologies were a novel and not yet global.

[12] To examine online theatre these authors often refer to stage based conventions, as I proposed doing with dance.

[13] MUD – Multiple User Domains hosted on the web.

[14] The accelerated development of these technologies is related with fast research on computers and availability of production means.

(for example wi-fi) are also important variables when we attempt to define the concept and therefore the artworks.

Ten years ago the Internet was mostly accessible through land-line in fixed spots installed near household telephones; this would limit artworks to seem to occur 'inside' the computer itself and normally the user 'entered' via domestic space[15]. Today our 'portal' to cyberspace may be on the palm of our hand, with wireless connection on a smart-phone; the artworks may be accessed in public sites and the screens are much smaller. Thus, technically, 'teleportation' into cyberspace can happen from almost anywhere: at home, on the bus, in a café, in the museum or at the theatre foyer. Small, cheap and downloadable applications are now commonly used, so the interplay with content does not always depend on Internet signal and connection.

Accordingly, not all theoretical writing and practice restrict the notion of cyberspace to Internet communication and World Wide Web, which can be observed in the interpretations of Levy, Benedikt and Bell. Dodge and Kitchin, for example, agree that the conceptual construction of cyberspace is supported by ICTs[16], but they distinguish between online connected spaces and virtual reality spaces that create "visual, interactive computer-generated environments in which the user can move around and explore" (2001, p.5).

In the article "Cyberspace as a Performance art Venue", Auslander refers the term to "the whole realm of digital media and information technologies", within which he includes CD-ROMs (2001, p.123). His agenda is to defend distinctiveness that comes from creative purpose (instead of archival or televisual), using interactivity in a performative way (associating with live and ephemeral attributes) and, with new media, operating in a mode that previous media did not allow. For Auslander these conditions are key to classifying cyberspace as a venue and thus, he argues, any screen-space can be seen as such; he nonetheless clarifies that position with examples that use Internet connection, linking remote physical sites or allowing access from physical space (private or public) to the artwork located in the 'mirror-world'[17] represented on screens.

Dixon, in *Digital Performance* (2007), equally does not exclude other virtual environments; but he clarifies this point by referring to "Internet cyberspace", which he underlines, is a mental construction: "to state the blindingly obvious, when supposedly

[15] I am referring to domestic space in particular as a reference because I am assuming the artworks would be accessed in leisure time although internet connection was available in working places, schools, etc.
[16] ICT - Information and communication technologies.
[17] Mirror world is a commonly used expression to describe the 'world' that is represented or accessed through screens, which can be applied to the cinema as well as virtual reality environments or content accessed through the Internet.

in cyberspace we sit at our computer terminals" (p.462). For Dixon, to understand cyberspace as a place we need more than communication between two remote sites; this he remarks, was already experienced with the telephone, or between different times, as post services and later the email provide (pp. 460-466). What is essentially different from earlier modes of communication, Dixon emphasizes, is the online chat-room; understood in this way cyberspace requires real-time interaction between people and their sense of being, and meeting, somewhere other than the physical environment from where they transmit.

The concept of navigation, Dixon adds, is fundamental to imagine the network of cables and machines as a 'space' where metaphisical journeys happen in the comunal space of the web (p. 462). This notion of navigable space was already embedded in Manovich's conceptualization of cyberspace: where the user can choose a path and steer through content and representations, which unite the spatialized data visualization in 3D models and the abstract information network. For Manovich "the use of navigable space is common to all areas of new media" and provides a "key foundation for new media aesthetics" (2001, p.248).

The ideas outlined above suggest that dance performance in cyberspace is not necessarily restricted to particular communication and instantiation models; nor does it accumulate them all. When selecting case studies I have been careful to include different layouts: a web-based dance; an I-phone piece; and a multi-user installation. They use different technologies and media in ways that are specific to their form and thematic concern; in doing so they challenge and add on to the conceptualization of cyberspace.

What is new media?

The capacity of the computer to be used for production, distribution and exhibition, even if not all simultaneously involved, is an essential condition for our understanding of new media. The conventions established by older media like texts, photography, moving images and sound, remain strongly present, but new media objects are composed of digital code, originating from processes of digitization (recorded samples) therefore being programmable and able to synthesize data and generate other new cultural objects. This is the basic distinction that Manovich offers in his book *The Language of New Media* (2001), which is common to web sites, virtual reality, computer games, interactive installations, digital video and cinema or human-computer interaction.

According to Manovich, there are five fundamental principles, which derive from the digital substance of new media – numerical representation, modularity, automation, variability and cultural transcoding[18]. The first two principles refer to the digital and fractal structure of new media, which can either be computer-generated (synthesized) or result from a process of digitization that converts older media into discrete data (sampling); all new media objects are composed of digital code, enabling endless possibilities of separation and assemblage, of division and multiplication - changes like resizing a picture or changing the speed of a film for example, generate new modules or new compositions, but that does not destroy the original data files. With the operation of the other two principles, the modules of data can be processed to have automated response to user command and adapt to variables, such as different interfaces and personalized navigation; new media are therefore interactive and customizable.

Transcoding regards the double configuration of new media objects, where two layers operate: the first is the computer layer, which is the real numerical essence of these media, made of pixels, numbers, values and file formats. The second and cultural layer refers to the display of such numerical reality in the output of images, text and sounds, so that we can recognize those representations and use them in a discursive way, articulating specific meanings and triggering user action in response to the content provided by data. Manovich exemplifies this quality with the computer image: "on the level of representation, it belongs on the side of human culture, automatically entering in dialog with other images" - but while having this symbolic value, the image is also "a computer file that consists of a machine-readable header, followed by numbers representing colour values of its pixels" and it dialogues, in this level, with other computer files (2001, p.45).

In *Remediation: Understanding New Media,* Bolter and Grusin (1999) analyse the mediation of reality in prints and recordings and how new media "remediate"[19] older media. For the authors new media operate with a double logic of "immediacy" and "hypermediacy": new media such as 3D videogames and virtual reality environments[20], count on the illusion of immediacy to enable an immersive experience and distance the

[18] Manovich's method to understand "what is new in new media" was informative to analyze links between live performance and new media dance performance. This method is further addressed in Chapter 3.

[19] In Chapter 3 I will readdress Bolter and Grusin's concept of remediation, which has been widely used in studies in performance about digital artefacts, in order to support my proposal to study my subject as a process of migration between the live and the digital.

[20] At the time of Bolter and Grusin's writing Virtual Reality required headsets and gloves to see and navigate inside the 3D landscapes.

user from real physical surroundings. On the other hand hyperlinked multimedia or the World Wide Web do not disguise the medium; they rather take advantage of our awareness of fragmentation and the possibilities of choice, customization and multiple communication. Bolter and Grusin highlight that, despite these different procedures, new media have a common emphasis on user experience and the sence of authenticity; the quality of this experience they say, relates directly with the ability to navigate through content and interpet the cultural constructions.

Stressing the experiential as a featuring quality, in *New Philosophy for New Media,* Hansen (2004) has defended the notion that new media contribute to theories of perception and embodiment. Reasoning that these artworks are indetermined and unfisnished (because they invite external manipulation and participation), Hansen adds the relevance of the sensorimotor in user experience. The body, he says, "*enframes"* the digital information, which he sees, perhaps contentiously, as "originally formless", and therefore "affectivity is the dominant phenomenological experience associated with the digital"[21]. This relation between senses and movement, he points out, is a defining characteristic of new media.

Hansen, Bolter, Grusin and Manovich refer new media to World Wide Web, computer games, virtual reality, augmented reality and audiovisual installations, which all depend on computation and numerical data. Rieser and Zapp (2002) or Rush (2005) use the term for visual arts exhibited in various formats.

Other authors have otherwise priviledged the term 'digital': Gere (2008) does so to refer to Digital Culture; Bolter and Gromala (2003), Wands (2006) or Paul (2008) use the term digital art[22]; and Dixon theorizes with regard to the genre of digital performance (2007) [23]. Likely, the term digital dance has been used to address dance and digital technology convergences (see for example Rubidge 1999 and Whatley & Varney 2009); these include many functions and results such as software to devise choreography (Cunningham), electronic feedback to live movement (Wechsler and

[21] Hansen beholds his argument on Bergson's notion of the body as a centre of indetermination proposing to extend Deleuze's notion of image as movement, for him a perceptive construction that requires a step further towards affectivity that relocates the centre of perception in the body.

[22] Paul uses digital as an umbrella term for "a broad range of artistic works and practices" which "does not describe one unified set of aesthetics". New media art in his opinion possibly eschews the true fact that "some of the concepts explored in digital art date back almost a century, and many others have been previously addressed in various 'traditional' arts (2008, p.7).

[23] I am convinced that Dixon uses the prefix 'digital' because of the connotations associated with the term 'virtual' – in dance possibly disconnected from digital technologies and in virtual art linked to virtual reality environments. New Media on the other hand emphasises the medium aspect, referring to a kind of materialization/mediatization. Dixon cannot compromise entirely with new media since he addresses many theatre, dance and performance art cases, which are ethereal/virtual/liminal. Hence digital indicates that computer technology is implied but it is somehow a neutral and more technical term.

Obermeyer) or telepresence experiences (Kozel and Sky)[24]. This term became popular because it associates computer technology unequivocally but remains flexible to accommodate different archival, creative, and educational approaches that have flourished in dance.

The term virtual has also been coupled with digital technology since the 1990s - it translates the idea of cyberspace as an imaginary space in continuous transformation. Levy's considerations regarding computers and global networks in *Becoming Virtual: Reality in the Digital Age* (1998), have contributed to the fairly widespread use of 'virtual' and 'virtuality', when artworks and communication modes that use computer code are discussed. As an example, in his study *From Technological to Virtual Art* (2007), Popper considers 'virtual art' as a "new and refined version of technological art" (p.1), which explores multisensory features and calls the public to interact with displays and software. He supports this designation with a consistent conceptual development of the term – however, other authors classify the same spectrum of work, which he analyzes, as 'new media art' and 'digital art'.

Massumi has questioned such undifferentiated appropriations In *Parables of the Virtual* (2002): being codified the digital is equivalent to the predictable and antagonises the virtual, Massumi argues, and he claims that "nothing is more destructive for the thinking and the imagining of the virtual than equating it to the digital" (2002, p.137). Philosophical discussions about dance, as we find in Langer (1983) and Melrose (2009), although unrelated, support this view; both scholars differentiate dance on the basis that embodied agency is always needed for the artwork to become actual and resolve in time and space. Massumi's association of the body with the potential and the undefined finds a direct connection with the theoretically unmediated art of dance. However, although less common and potentially misleading (if we want to stress that new media technology is in use), the term 'virtual dance' has been employed to distinguish practices from other forms such as dance films or video installations.

My own interpretation in this framework is that new media, virtual or digital, when applied as prefixes to designate art practices, translate different logics. As Bolter and Grusin argued the works either make the mediation transparent or visible. For example, Grau (2003) discusses key points about illusion and immersion to understand virtual art and its relation with the logic of immediacy; but Bolter and Gromala (2003),

[24] Various projects where dance and technology converge are reviewed in Dixon (2007) and Salter (2010).

who make a case for hypermediacy and the visibility of the computer medium, always refer to digital art.

Different terms can also indicate technological specifications: the digital better suits the hyperlinked text and multimedia in the web or other formats, while the virtual associates with 3D motion capture techniques and synthetic simulations. deLahunta for example, although initially expressing discomfort with the term, concludes that 'virtual dance' suits a "new form of dance making arising out of a combination of motion captured movement, physical modelling (…) and the application of new animation techniques" (deLahunta 2001, p.5).

Manovich presents, in my view, the clearest reference to explain the criteria that I selected to characterize the object of study. New media encompasses both the digital and virtual terminologies and brings the word media to the fore - another crucial term for this study, which I discuss in Chapter 4. I have adopted the term 'new media' because it a) conceals the idea of data-space which is navigable and networked; b) identifies technological mediation that operates with new media principles c) ensures that human-computer interaction is involved; and d) provides links to debates on cyberculture. Consequently I have assumed a derivative term, unusual among my peers: 'new media dance' (Varanda 2012). Moreover, I advocate transcoding as an illuminating principle to understand cyberspace as the techno-cultural construction that Bell described. Although digital navigable space refers to an interface, to access and search through a database, for Manovich we should favour its conceptualization "as a cultural form in its own right" because that form, he says, "may be unique to new media"(p.251)[25].

Which sort of interactivity?

Manovich finds the term interactivity unspecific because "Once an object is represented in a computer, it automatically becomes interactive" (2001, p.55). Since the computer interface is designed for humans to manipulate information, Manovich argues that: "to call computer media 'interactive' is meaningless - it simply means stating the most basic fact about computers" (idem). Dixon also alerts us to the fact that the term is so oftenly used and for so many things that it became "an increasingly meaningless buzzword in myriad contexts" (2007 p.561).

[25] Throughout this thesis I shall be explaining how this uniqueness of new media is meaningful for the possibilities of previously unmediated artistic utterances, that come from body-based expressions in performance, to enter territories that before were mostly dominated by imprinted utterances in mediating materials, and vice versa.

The assumption that interactivity is an exclusive attribute of computers has also been questioned because the term can apply to "psychological interaction" (Manovich, 2001, p.57), which occurs in theatre and exhibitions, when spectators and visitors fill in the 'gaps' of the work with mental processes of association and contextualization. All artworks, Dixon remarks, "are interactive in the sense that a negotiation or confrontation takes place between the beholder and the beheld" (2007, p.559). However, Manovich underlines, when exchanges between humans and computers are in place physical interaction and audience participation are implicit[26]. The human physical and the participatory seem to me to be key.

Paul refines these points in her *Digital Art* (2008 [2003]). In psychological exchange the viewers do not change the work, she recalls, while interaction with computers: "allows different forms of navigating, assembling, or contributing to an artwork that go beyond this puerely mental event" (p.67). Interactivity in this sense, she signals, is a characteristic of the digital artwork that interferes with aesthetics: "the digital medium's distinguishing features certainly constitute a distinct form of aesthetics: it is interactive, participatory, dynamic, and customizable" (idem). Artistic purpose supersedes the notion of interactivity as a simple process of cursor pointing and clicking; the artworks are "open-ended" and have a "fluctuant structure" that enables "participation" (ibid). There are different degrees of control – the receivers can either manipulate existing parameters or input with data, which the artists use as content of automated responsive systems.

With the same agenda of specification, Dixon emphasizes the possibility of real-time physical interaction: the viewer, spectator, or visitor become active partakers with visible contributions in the completion of the digital artwork[27]. For Rubidge, participation as such changes the audience's role and classification of the artworks: if interactive installations reveal themselves through the visitor's behaviour, then the former spectator now creates a unique event from the same work (2009, p.372). Auslander explores in *Liveness* (2008 [1998]) this conceptualization of an event that

[26] While in computer science and new media art interactivity is normally unequivocal in addressing anonymous users, the term is common in the performing arts to refer to performer-system relationships that generate results for the stage that spectators can watch. Dance companies have explored interactivity in this way quite often, as this chapter accounts for further ahead. As a criterion for dance performance in cyberspace interactivity is related with a set of conditions that enable the audience to physically engage with the artwork.

[27] These options in turn, have a significant impact in the artworks themselves; works that before were published in fixed materials and concealed forms may now become ephemeral and unstable, thus approaching the condition of time-based and performance arts; while this change is revolutionary in the field of visual arts, and supports arguments for a new aesthetics (as Manovich referred), for dance performance this is not a crucial transformation.

results from the user's physical engagement, which underpins his argument that new media artworks can remediate performance[28].

As Paul summarized 'digital' artworks are "dynamic" - because they accommodate changes in the data-flow - and "customizable" because the user's data develops and possibly changes the work (2008, p.68). Interactive digital artworks therefore bring forward the issue of participation and the following questions emerge: what sort of relationship is expected; and how does it impact in the work?

By considering those questions new media artists, I argue in what follows, empirically specify the meaning of interactivity - they have explored many variations, which scholars have widely theorized. The way interactivity determines the artwork and user-experience is tangled with human-computer interaction (HCI) design; HCI in turn, evolves alongside technological possibilities and can be argued to articulate philosophical paradigms, which divide, generally speaking, between rationalist and phenomenogical epistemologies.

In *Where the Action Is* (2001), Dourish draws a timeline of computer-interface development, regarding ways of displaying, accessing and controling content. In the early 1980s HCI was text-based and linguistic skills were the main reference for the user to engage with the machine; with computer graphics (late 1980s), such complex operations were represented by simple icons drawing on visual metaphors and requiring less proficiency in computer skills; and at the turn of the millenium tangible and social approaches to computing explored new models of interactive system design. For Dourish these models reflect improvements in processors, software and hardware but, more importantly, they attempt to integrate computers into everyday life and incorporate physical and social experience.

Tangible computing, Dourish explains, moves "away of abstract cognitive processes and into the same phenomenal world as our other sorts of interactions" (p.103) - physical reality becomes a model to shape the virtual and the electronic and physical properties suggest how to use the interface; as in product design of everyday utensils, affordances gain importance. Social computing informs HCI with investigation of how people organize social life and communicate; this model extends HCI to computer mediated communication (CMC), because information about others and their activities stimulates individual interactivity.

[28] In Chapter 4 I shall discuss how these categories make the work remain performance and in the chapters dedicated to case studies I will explain how do the artworks resolve these issues.

Rather than forcing users to inhabit an abstract computer environment, interactive design is responding to real-word chalenges; thus Dourish remarks, this evolution rejects the cartesian notion that a disembodied brain can process the world. He developed a phenomenological framework[29] to discuss HCI, with which he argues that embodied interaction is an inevitable emerging paradigm.

In *Windows and Mirrors* Bolter and Gromala (2003) highlight the contribution of digital artists to HCI and confront two leading perspectives in the history of its development, which divide scientists and designers. The structuralist community of computer scientists privileged a pragmatic approach, extolling the effect of transparency and functionality of computers as mere "information appliances" (p.2), which tend to 'disappear' as they become ubiquitous and commonly used[30]. Designers were, contrarily, questioning the form to present and access content, underlining visibility on the principle that "we often want to be aware of the medium in order to understand the experience that it is staging for us" and therefore "every digital artefact oscillates between being transparent and reflective" (pp.5-6).

For Bolter and Gromala digital artists are the practitioners that better reconcile aesthetics and efficiency: interactive artworks dependent entirely on exchange and artists keep searching for successful models. Since viewing and experience are directed by the interface, which links users and content, the interface is crucial for a digital application. Therefore, the authors write: "digital art can provide the clearest test to the possibilities and constraints of digital design: it fails or succeeds unequivocally on the strength of its interface" (p.11).

Alongside analysis[31] of artworks, the authors explore, in a powerful conceptualization, the differences between transparency and visibility. The windows metaphor prevailing in computer design attempts to erase the interface and increase the sense of 'reality' by immersing the user in data representations (p.42). Alternatively, adopting the mirror metaphor, "many digital artists are exploring the theme of reflexivity explicitly by creating pieces that (…) reveal the viewer to herself or others" (p.154) - in this situation the work reflects both the cultural and the individual.

Choices between window or mirror metaphors, the authors argue, represent political positions regarding inclusion, embodiment, representation and diversity. With

[29] Dourish is structuring a foundational theory and engages with the philosophical theories of Husserl, Heidegger and Ponty.
[30] 'Disappearence' is an idea elaborated by Don Norman (1998), and Jacob Nielsen defended that the functional should be a priority for web page design (Nielsen 1999).
[31] The book is dedicated to the works presented in the art gallery of SIGGRAPH2000 international conference (New Orleans, USA) – information in https://www.siggraph.org/ [accessed 8 January 2015]

this understanding, Bolter and Gromala extend the issues of immediacy and hypermediacy (Bolter & Grusin 1999), which relate to aims of transparency and alienation or visibility and awareness.

Dixon is a key author whose work theorizes interactivity in the performing arts and he isolates four categories: navigation, participation, conversation and collaboration (2007, pp.557–598) - to illustrate the meaning and consequence of each category, Dixon exemplifies each with artworks. With navigation the user (or performer) chooses the pathway through existing content in electronic space; the work might require a material controller, to click hyperlinks and activate camera angles, or be equipped with tracking sensors that respond to sound or movement. Participation invites the spectator to join in and integrates that agency in the work; for Dixon this relationship is quite engaging when the effect of the input is well understood, especially in collective participation systems. In a conversation model the participant feeds the system through his/her action, which determines feedback that, in turn, stimulates continuing interaction between the two - this exchange may occur in individual HCI or in CMC situations with multiple users; the notion of dialogue is implicit in this cathegory and Dixon remarks that ethical issues regarding negotiation, trust and cooperation are normally involved. Finally, in collaboration, the vistor's behaviour transforms the artwork - this input is "its primary (rather than secondary or incidental) material" (p.596).

In *Performance, technology, & science* Birringer discusses interactivity as two different processes when computers are involved: responsive systems for spatial, social or self awareness, or receiving systems that invite the user into a collaborative creative act (2008, pp.110–125). In responsive systems the computer tracks coordinates of presence and actions, and the feedback promotes consciousness of the surrounding space; this function is more or less effective depending on the responsive quality of the system. For Birringer this model represents first-generation interactivity, when action-reaction were the forefront concerns of HCI, mapping gesture to trigger sound or imagery. When collaborative interaction adds to the responsive features then new content is generated, sensorial dialogue is emphasized and humans and machines generate different things with autonomous processes. This is second-generation interactivity, which Birringer claims to enhance the value of an aesthetics of experience; performance art happenings and postmodern dance of the 1960s in the USA are, for him, analogue antecedents of this phenomenon.

The authors above make the existence of various interactive models explicit, how they follow computer technology development, reflect practices of inclusion, and

merge artist and the audience in a shared event-artwork. In these studies and practices I have noted a tendency to focus on user-centred design and user-experience; such emphasis on the spectator's role and his/her reflection/(re)articulation in the resulting work has also energized the notion of 'creative users', who might not have the skills of professional practitioners.

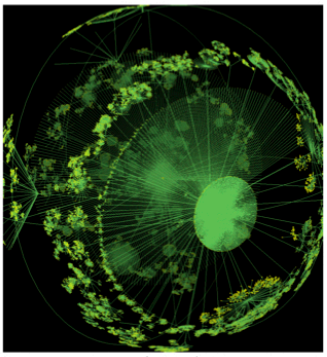
The authority in the artwork given to the user is an issue that Popper debates while analyzing interactive installations. He addresses those relational practices with two major classifications: becoming part or becoming a creator, which indicate two distinct principles: participation and interactivity. Popper argues that truly interactive relationships only occur when "reciprocal aesthetic propositions" result from the spectator's autonomous contribution (2007, p.220); thus he uses participation as a term that "describes a specific relationship between the spectator and an existing artwork, in which the spectator assumes the role of participant, but not author" (p.221). The theoretician draws this distinction in order to identify interactivity as a particular feature of virtual art.

Popper's critique of assumptions that audience participation necessarily interferes with authorship is simillar to Manovich's position, who contests that the ability to make choices means that "the user becomes the co-author of the work" (2001, p.55). With these warnings in mind, the user-as-author discussion appears, in my view, to apply mostly to cases that configure Dixon's collaboration category, which Birringer locates in second-generation interactivity; when HCI follows the mirror metaphor eulogized by Bolter and Gromala and in the tangible and social models explained by Dourish, the possibility of the creative user stands out.

Conceptualizations in these dicourses are often pinned to particular cases because practices reshape the meaning of the terms and, as Dixon remarked (p.563), cathegories often overlap. Even so, I find Rubidge's understanding of the authorship issue quite appropriate: when spectators' have a role in constructing the configurations of the artwork she says, "they become co-authors of the work-event, but not co-authors of the work" (2002, p.156). This elucidation and Bolter and Gromala's acclaim of artistic practices, support my suggestion of the need to rebalance focus in the study of interactivity: we must investigate further how the "expert-intuitive artists"[32] design the works that enable these experiences and 'events', and what the result might be in terms of the artworks.

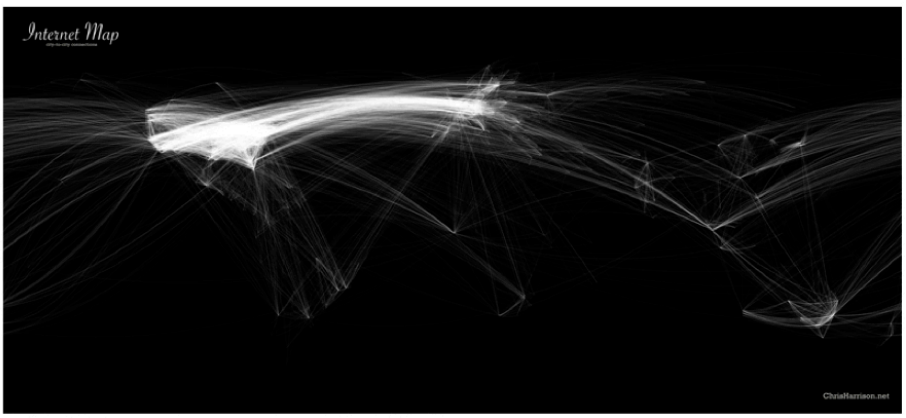
[32] I m applying Melrose's (2007) expression to refer to the expert knowledge of art practitioners, which I will readdress in Chapter 3.

This literature review has thus far followed a taxonomic approach to extend interpretations of 'cyberspace', 'new media' and 'interactivity'. These terms, which are grounded in technologies that are now essential components of some artworks, become necessarily engaged when we theorize such practices. For my enquiry about dance performance in cyberspace this discussion was indispensable to distinguish, in technological terms, the practices framed by a speculative title, which places them in imaginary places (fig.2:1).



1. Internet topology / Young Hyun

2. Cybergeography / Markus Novak



3. World city-to-city connections / Chris Harrison

4. Oregon data centre / Google

5. Connection between computers

Figure 2:1 - cyberspace visualizations[33]

[33]Images downloaded in January 2013 at
1 - http://personalpages.manchester.ac.uk/staff/m.dodge/cybergeography/atlas/walrus1_large.gif
2 - http://infosthetics.com/archives/cybergeography_book3.jpg
3 - http://pt.slideshare.net/ana_adi/chris-harrison-internet-map-city-to-city-connections-presentation
4 - http://i.i.cbsi.com/cnwk.1d/i/tim/2012/10/17/google-datacenter-people-02.jpg
5 - http://www.tipsnext.com/images/2012/10/share-internet.jpg

2.2 Applying the qualitative frame: dance, professional and art

My position as an expert in dance, with high-level training, professional practice and scholar activity, brings the qualitative framework forward. In Chapter 1 I argued that these terms are significant to delineate my object of study, discuss its position within canonical understandings of dance and performance, and pursue a project of analysis and the evaluation of case studies.

Since I am equally the researcher, the implications of this terminological enquiry are only pertinent to discuss, in my view, in terms of subject-focused or methodological discussion. I propose to consolidate the understanding and reach of these terms within the qualitative analysis of literature/artworks that follows in dedicated chapters: in Chapter 3 to define the object and method of analysis; and in Chapter 4 to supply a theoretical understanding of the dance medium and discuss the issues of transfer and transformation.

Scholars that edify the study of dance - such as Carter, McFee, Thomas, Sparshot, Copeland, Adshead-Lansdale and Preston-Dunlop and Sanchez-Colberg - contributed to secure what is meant by 'dance performance'. Certain authors pioneered methods of dance analysis, which I also review in Chapter 3; although they were not devised for new media dance artworks, I argue that we should use them to examine dance performance in cyberspace. Are they suitable for this purpose? I propose that we can intersect with models from other disciplines, which I have joined in this research, and therefore fill eventual gaps.

The qualitative frame is also clarified as we engage with dance theory, because Dance Studies address, in many cases, discipline-specific artworks with expert teams. Melrose however, brought a particular contribution, which illuminated my insistence in professional dance performance in a field that is, for many, transdisciplinary and about hybrid practices. Melrose (2007; 2009; and 2012) argues that "expert-intuitive" practices determine the way we use specific technologies and develop practice-based knowledge. Her thoughts inform my reasoning that these conditions influence the aesthetics of the artworks, which I analyze and evaluate.

Because of the focus on aesthetics in their studies of dance, I have notionally used discussions by Redfern (1983) and Mcfee (1992; and 2010) to momentarily stabilize the most contentious of all the terms in the hexagonal frame of criteria: 'art'. I deliberately avoided speculative discussions about this term, or any effort to validate

practices according to particular canons. My emphasis on art as a self-defining criterion aims to specify a qualitative condition for the purpose of this research – one that indicates as Auslander insisted, that these practices in cyberspace have a creative intention, rather than mere informational or archival functions. Thus I hold on to the principle that if the expert-practitioners present their works as art, then the expert-spectators can analyze them as such, and their possible role within them. The mapping of literature and practice coming out of the next section has granted me a critical perspective on what is 'out there'; but I confined my subjective opinions to the case studies, where I can develop detailed and objectifying arguments.

New Media Studies and Dance Studies provide, nonetheless, many remarks about the concept's vulnerability to varying and evolving technologies, cultural context and institutional frames. As well as in the texts of Redfern and Mcfee, this contingency is evidenced in Thomas (1995) and Foster (1995) for example, but in the volumes of Auslander (2008 [1998]), Broadhurst (1999) Wilson (2002), Dixon (2007) or Mitchell and Hansen (2010) the subject is discussed in relation to the destabilizing effect of new technologies and new media. This is the key aspect that I have considered when I discuss transfer and transformation in dance performance in cyberspace.

With such a warning in mind I became attentive to the consequences of technical migration for the status of the artworks, and considered two major reasons: some derive from new ways of making that generate new forms, which disrupt the conventions that motivate institutional investment[34]; others derive from the context 'carried' by the devices, which I discuss as new 'venues' that frame the artworks[35] and how they might interfere with acknowledgement of them *as artworks*. For example, my second case study is a smart-phone app that had to be tagged for the purpose of engine-searching in cyberspace, but it could only be tagged either as entertainment or education.

2.3 Dance and the computer

The enquiry into the possibilities offered by computers to dance practice, although less visible in the references of new media and performance, can be traced far back with publications in the USA, Europe and Australia. Choreographers were soon interested in

[34] These can either be funding bodies, commissioning partners or educational programmes. The motivation of institutions, as we know, is fundamental to raise the value of the artwork and therefore for artists to be paid.

[35] I maintain this term across my thesis to keep the link with Auslander's referential stance to my research undertaking: that cyberspace can be used as a venue for performing arts.

the potential of integrating new technologies into their making processes and final artworks, and dance attracted the attention of computer specialists, visual artists or musicians, who saw in this discipline original insights for HCI design and artworks that could, with recourse to the new media, become time-based and dynamically visual, instead of being fixed or only aural [36].

Just as new media theorists have traced origins for their subjects (Bolter, Manovich or Dourish…), several authors account for the historical scenario that implicates dance and the computer together. Mapping this literature allowed me to map practices according to their purpose, their creators and their form; many projects illustrate processes, products and thematic concerns, which informed my analysis of case studies. Although I can only account for part of the story, the review has enabled a comprehension of the current state of the art of a field with many crossroads.

With *Dance Technology: Current Applications and Future Trends* (1989), Gray edited the volume that first gathers threads of enquiry and practice development appearing under the heading of 'dance-technology'; this then became a recurrent term to define what emerged from the relationship between dance and the computer. The articles, from several guest authors, pin down as areas of interest: motion detection and electronic 3D body representations, cyborgs and robot performance, computerized notation, software for computer aided composition, education and research, processing sound and image with effects for reproduction on stage performance, and responsive performance spaces.

Politis (1990) provides a comprehensive bibliography of 117 article publications between 1967[37] and 1989, with an article where he extends the overview of the field referring to notation systems, teaching methods with recording, archiving tools, movement and dance analysis, composition methods with generative software, or research and management tools such as databases and office services.

Computer aided choreography, first steps

Merce Cunningham is the choreographer who earlier embraced the challenge of working with computers, exploring their possibilities for composition. Cunningham begun to use Life Forms in 1989, with Schiphorst who was a student at Simon Fraser University in Canada, where the software was created. The programme enabled the

[36] For this reason we see the terms choreography and performance appearing much more frequently in discussions about digital art, as Bolter and Gromala are an example in the literature.
[37] Noll, A. M., "Choreography and Computers", DanceMagazine (January1967) pp. 43-45.

design of movement on human-like figures, three-dimensional and fully articulated, with features such as isolation of body parts, time and space specifications and the possibility of working with various figures on the same score (fig.2:2).

Schiphorst (1993) contextualizes Cunningham's contribution by reviewing previous computer systems designed for composition; these span from Noll's visionary ideas to devise directives for studio and stage work (1967); Lansdown's (1977) research with human models and computer-generated lists instructing space design, facing directions and durational variables; and the graphical representations of movement that enabled real-time animations from Bradford and Cote-Lawrence (1991)[38]. Schiphorst explains the making of *Trackers* (1991) – Cunningham's first Life Forms assisted choreography - and how his needs and feedback shaped the system; for her this endeavour humanized the computer by stretching capabilities to correspond to highly complex and specialized skills:

> Choreography is a compositional design task that requires a set of skills that have to do with creating, structuring, and forming. Building a computer interface which interacts with a choreographer's design skill set requires an understanding of the mental model of the choreographer's design process (Schiphorst 1993, pp.30–31)

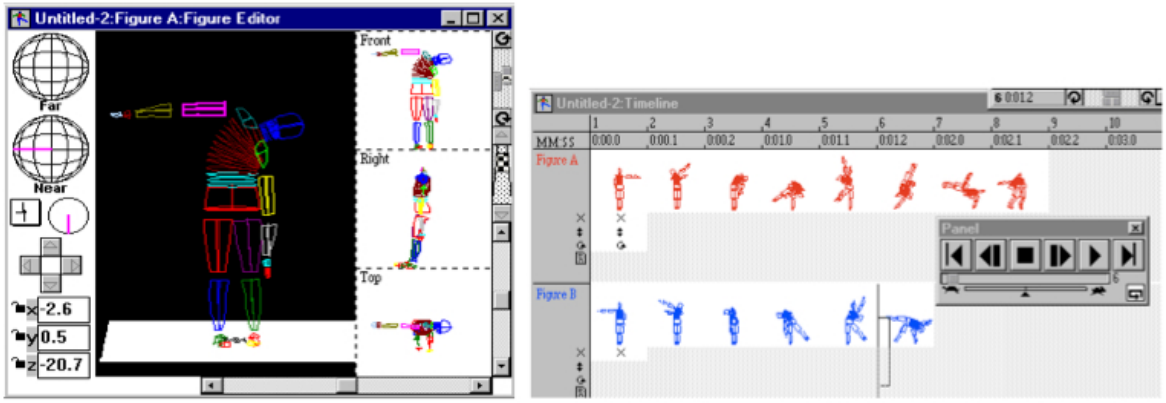


Figure 2:2 – Life Forms software screenshot

In *Merce Cunningham: The Modernizing of Modern Dance* (2004), Copeland remarks that Cunningham used the computer as a fundamental instrument to continue his prolific enquiry at the age of 70, when his activity was affected by strong physical constraints. Such undertaking, radically inventive, nonetheless followed Cunningham's widely appraised work, with which he established innovative principles such as: composition

[38] See Bradford, J. and P. Cote-Laurence, "Animate Tokens, Their Design and Application", *Leonardo,* Vol 24 No 5, 1991, pp 557-562; Noll, M. "Choreography and Computers" Dance Magazine, January 1967; and Lansdown, J. "Computer choreography and video" in Computing in the Humanities, Lusignan, S., and North, J.S., editors. Proceedings of the Third International. Conference, on Computing in the Humanities, Waterloo, Ontario, Canada, August, 1977, pp 241-252.

based on chance operations, autonomy of dance and music scores, decentred stage spacing, openness to creative input of other collaborators in the final ensemble. The choreographer shaped an aesthetics of collage, drawing a rigorous method to use chance operations and juxtaposition to make decisions about movement, sound, performers, lighting, scenery or costumes.

Copeland describes specific technologies that Cunningham used, and the impact they had in his performances and screen works; this includes the 'motion capture phase' when Cunningham produced his masterpiece *Biped* (1999) (fig.2:3). Cunningham's work disrupts with 'primitivist' and holistic beliefs, which informed previous American Modern Dance[39], the author argues, and reflects the velocity, diversity, fragmentation of contemporary urban life. Hence choice and chance are driving principles of Cunningham's work and, Copeland thus sees that "these recent utilizations of the computer are merely the latest instalment in an ongoing series of collaborations with technology that begun half a century ago" (p.202)[40].

Although Cunningham remained a "concert-dance practitioner" (as Copeland describes his work) and only sporadically integrated computer-generated or video-recorded performers and environments in his performances; the conceptual and methodological approaches he developed were extremely influential for following generations, who had other tools in hand and explored other ramifications that contributed to make dance performance in cyberspace a feasible project today.

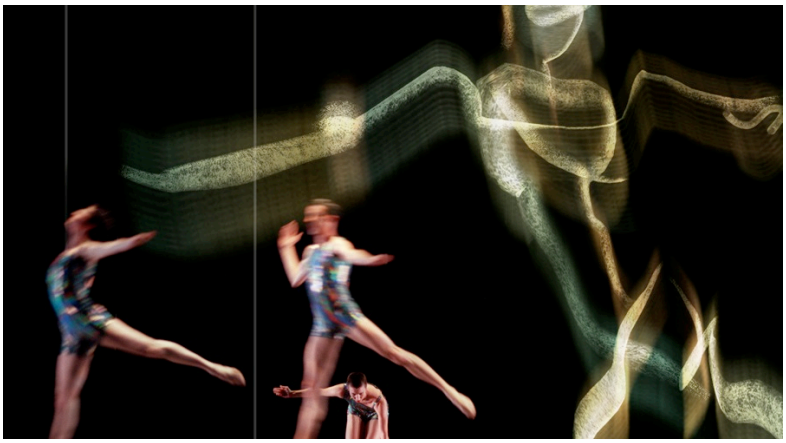


Figure 2:3 – *Biped*, Cunningham and OpenEnded Group[41]

[39] Copeland sets the boundaries with choreographers from Isadora Duncan to Martha Graham.
[40] Cunningham to this extent is a good case for the discussions populating new media art studies that trace genealogies back in time before digital technologies were available, as a mode of human thinking.
[41] Picture from http://openendedgroup.com/artworks/biped.html [download in March 2014]

New forms of notation, analysis and visualization

The fast-growing curve of this field during the 1990s is expressed in a collection of articles and interviews edited by Corin - *Danse et Nouvelle Technologies* (1999), which includes artists such as Cunningham, Forsythe, Kozel, Wechsler, Sharir, Schiphorst, Corsino and Mulleras. Several projects are identified and characterized by their groundbreaking achievements in relating a professional dance activity with the technological progress of the time; they were also representative of distinct purposes and methods of using the computer and new media.

While Cunningham explored the computer as a composition tool and Forsythe opened up research on archive and visualization, the other artists used new technologies in creative projects: Kozel with telematic presence and Schiphorst with touch, both indicated in their testimonies in Corin's volume, to be searching for intimacy and affectivity in interactions mediated by computers; Wechsler explained how he generated, with body data, electronic responses in stage performance; Sharir was designing cyborg dancers and studying audience immersion in virtual reality; the Corsinos were exporting choreography, with 3D synthesized dancers, into imaginary landscapes; and the Mulleras were beginning their enquiry into web-based dances with hyperlinked multimedia.

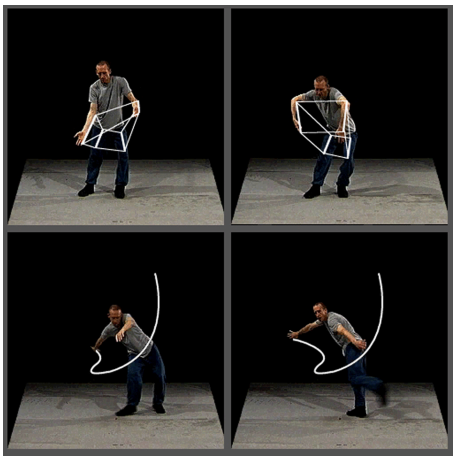


Figure 2:4 – *Improvisation Technologies*, Forsythe[42]

William Forsythe had already launched in 1997 *Improvisation Technologies*, a CD-ROM with footage of his pieces, organized in lecture-type sections and supported by text, sound and graphics. A multimedia manual, the like of which had not previously been seen, this book was made for the new dancers in the company to understand basic principles of Forsythe's improvisation methods. The project became widely celebrated

[42] Image from http://www.williamforsythe.de/uploads/tx_choreographicobjects/01_improvtech1_01.jpg [download March 2014]

as a form of notation and demonstration, which enabled analysis and visualization of the complex thinking contemporary dance involves (fig. 2:4). Forsythe said that "there are wonderful inner things hidden within dancing, and I think that the CD-ROM is just an example of how to communicate the exquisite interior of a cultural artefact" (in interview with Haffner, Forsythe et al. 1999, p.22). This analytical possibility, which would provide evidence of a new dance epistemology[43], was achieved precisely because these new media were available, and their potential sensed by the artist.

Periodic exploratory convergences

The 1990s were a prolific experimental period that spanned a wide variety of approaches; for Dixon, at this time "digital dance works were mainly to be seen by aficiandos, advertised on special e-lists, or witnessed at specialist conference gatherings" (2007, p.206). This work remained unfamiliar to the main professional dance scene and its audience, and it still excites a degree of expression in the ranking of scholarly publications. This decade was nonetheless determinant because many artists inaugurated research practices, which set the mechanisms in motion for further development and emergence of regular and theoretical writings in the following years.

These activities involved venues and producers that were committed with experimentation in contemporary art, which was also appearing within visual and sound arts projects with new technologies, and valued the innovation of these endeavours. They started to host international meetings and workshops where scholars and practitioners could debate, exchange and disseminate the issues and methods emerging within a new and dynamic international network of performance artists and software designers. These events stimulated the production of reports, proceedings and essays, which remain important for research in this field (see for example Trotter 1996; deLahunta 1999; Smith 1999; Boddington 2000; and deLahunta 2002b)[44].

Dinkla's compilation *Tanz und Technologie* (2002) regards a workshop series to discuss evolving reasoning about the body in dance and performance, and find a didactic model to use digital media and make "digital dance", which Dinkla defines as a dance "that views digital technologies as an integral component of the artistic process

[43] This notion of dance epistemology becomes more important in later projects such as *Synchronous Objects* – which I will talk about further ahead - and *Motion Bank.*

[44] These authors have edited volumes about events such as Riverbed workshops and Software for Dancers (deLahunta); the weave (Boddington), The Green Mill Conference in Australia (Trotter) and IDAT - the International Dance and Technology Conference (Smith).

and as conveyors of a new physical self-image" (p.20). Evert (pp.30-65) analyses the evolution of dance and media here, particularly new media, linking innovations of twentieth century dance with the use of digital technologies: emancipation of the body as a discursive element, montage as choreographic principle[45], interactivity and audience participation. deLahunta (pp.66-87) presents examples of "periodic convergences" between dance and the computer since the 1960s, which focused on score notation and generation, participatory practices and HCI models, motion capture, or telepresence.

For a wider community those tools were only becoming relevant at the turn of the millennium, deLahunta remarks, when digital technologies achieved higher sophistication and distribution. He sees dance as a late incomer into the computer technology enquiry because "the body in motion does not lend itself easily to digitisation" (p.66). Consequently, he argues, the links between dance and the computer are episodic and are only the concern of particular artists at particular moments in time.

Consolidating theoretical perspectives

The telling of this history emerges from articles appearing in specialized journals (see for example Birringer 2001; Birringer 2002; deLahunta 2002b; deLahunta 2002c; Rubidge 1999; and Rubidge 2001), edited collections of essays (as in Dinkla and Gray) and single-author volumes (such as Kozel, 2007).

In *New Visions in Performance* (Carver & Beardon 2004) several artists talk about their practices, which comprise stage performances, installations or video projections and reflect theoretical questions that emerge when performance and new media cross over; the editors explain how the projects intersect and suit discussion of particular subjects. Cognilio - director of American dance company Troika Ranch (fig. 2:5) - argues there that dancers feeding the computer system and reacting to feedback is a way of "imposing chaos of the organic on to the fixed nature of the electronic, ensuring that the digital materials remain as fluid and alive as the performers themselves" (Cognilio in Carver & Beardon 2004, p.7).

[45] Whyte provides a very clear and detailed explanation about the relationship between montage and choreography, drawing on cinema theories and choreographic practices such as those of Maya Deren or other more recent artists like Loyd Newson (Whyte 2007).

Figure 2:5 –*16 (Rev)olutions*, Troika Ranch[46]

For Carver and Beardon different conventions associated with the stage and the screen - as major models of production and contact with the audience - were becoming closer with new models of performance resulting from new technologies. Virtuality, the body, time and liveness, space, interactivity and magic are keywords that resume the themes of the book, which reflect the complex and varied concerns of these new performances. Carver and Beardon review the debate on the ontology of performance that emerged in the late 1990s[47]; in these practices they see evidence that the visceral and ephemeral event is finding ways to connect and instantiate with reproducible digital media.

As deLahunta pointed out above, the convergences between dance and the computer are heterogeneous and intermittent. They vary between different artists and they vary within the particular path of an artist or collective. This complicates the project of drawing an historical timeline, organized in streams of aesthetic or technological categories.

In the practice-focused literature we find that authors adopt different strategies to cover the practices and debate theoretical issues. One criterion is the 'intention behind' the use of computer technologies - such as, for example, compositional, analytical or creative purposes. Another thread is to address the work of a particular group or artist and trace featured aspects and variations in their development. Particular subjects related to scientific, cultural and critical study for example, have also provided organizing strategies, which then align artists and practices accordingly. The following headlines demonstrate the accounts provided with these different methods, which appear in a number of prominent publications.

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[46] Image from http://www.troikaranch.org/images/16revs-lines.jpg [download March 2014]

[47] This debate, which I will address in Chapter 4, initiated with Phelan's argument in *Unmarked*... (1993) that Auslander counter argued with his theory in *Liveness* ([1998] 2008).

Customized software for performance and interactivity

Dixon (2007) reviews the state of the art in dance[48] on the basis of the software designed and hardware used by artists together with computer-expert collaborators; but he also distinguishes the enquiries according to technological determination, aesthetic results and theoretical concerns.

Among various other desktop "dance-simulation programs" Life Forms became a popular software due to Cunningham's use of it; Dixon highlights this major step, which "ensured his position as one of the leading pioneers of digital performance" (p.187). Cunningham secured this position again by making, with the Riverbed collective directed by Kaiser and Eshkar, the acclaimed stage piece *Biped* (1999), where they used motion capture to animate the "virtual dancers" projected on a scrim[49], which Dixon describes as the "hand-drawn abstractions but capable of unerringly lifelike movement" (p.190) that changed in scale and "have since became archetypal of digital performance" (p.192).

The Riverbed collective[50] made another "influential milestone in aesthetic manifestations of the virtual body", Dixon remarks, with Bill T. Jones in *Ghostcatching* (1999); this was an installation without a real performer, which has prompted numerous discussions, sometimes antagonistic, about disembodiment (Dils 2002) and identity (Kozel 2007), that I discuss in Chapter 4. I agree with Dixon's enthusiastic reception of *Ghostcatching*: "This is a majestic, spectral incarnation of Jones dancing which literally takes the breath away" (p.195).

Another family of software development is human-computer sensor systems that enable real-time interaction between performers and computers, which have initiated as wired relationships and evolved with wearables, touch surfaces, camera-tracking and laser-controlled systems. Coniglio (Troika Ranch, USA) is a reference in this domain with his software Isadora, which is today a well-valued product in the market, used for many applications[51]. Wechsler and Frieder Weiss (Palindrome, Germany), developed a user-friendly camera tracking interface - EyeCon - that was also extensively used by

[48] In a full chapter entitled "Digital Dancing and Software Developments" (pp. 183-208).

[49] A thin cloth placed front stage that reflects the projected image but appears to be transparent. Everything behind the scrim, once lit, becomes visible and seems to mix with the projection.

[50] Riverbed changed their name to OpenEnded Group and have a comprehensive website with videos and writings about their work with Cunningham and Jones, see http://www.openendedgroup.com/ [accessed 12 December 2013].

[51] Isadora can be purchased online; it is very versatile and quite simple to understand. Cognilio worked with his collaborator Stopiello to develop the system. deLahunta introduces this software in an interview with Cognilio that includes statements by other experts who have used it (deLahunta 2005).

others. Povall and Gibson-Ellis (half/angel, UK) have integrated sensor interactivity for digital imaging and sound control in various pieces[52].

Troika Ranch, Palindrome and half/angel are cases of early and consistent research into computers in theatre performance (since the mid 1990s); they have developed customized software and explored real-time interaction instead of rehearsed simulations of response, matching computer interactivity with techniques of dance improvisation. Because the audience might well not understand what is actually going on, Dixon recalls that both expert and general spectators have showed scepticism as to the worth of these practices:

> A common criticism of works using motion-sensing media activation was that the relationship between the performer's actions and the software manipulations were at best hazy or unclear and at worst invisible (Dixon 2007, p.201).

Software development has also responded to the aims of presenting dance artworks in alternative formats to stage performance. In this publication those explorations are represented with Igloo (directed by Ruth Gibson and Bruno Martelli), which Dixon deems to be "one of the visually freshest and sensorily pleasurable digital dance companies in the United Kingdom" (p.199). Dixon refers to Igloo in various thematic sections: *Vicking Shoppers* (with Kirk Woolford) have digital doubles that translate movement in ASCII code (p.199); *WindowsNinetyEight* (fig. 2:6) used the CD ROM as a creative medium (p.638-639), and in *Winter Space* the virtual performers originate from real dancers and project dance into "cosmological representations" (p.57).

Figure 2:6 – *WindowsNinetyEight*, Igloo[53]

[52] Povall was part of the team that designed the 'intelligent stage': a studio based at Arizona State University where much dance and technology research was been made by various renowned artists and students (see Birringer 2004).

[53] Image from http://www.gibsonmartelli.com/images/WindowsNinetyEight2.png [download February 2015].

Moving away from the stage and towards the outer world

Igloos' extensive practice has been theoretically discussed, particularly in the case of *SwanQuake* (2007)[54], which is a project that gathers dance, quake game and an installation format - the audience is invited to enter the navigable space of a virtual environment representing East London and take part of 'the game'. *SwanQuake: the user manual* (deLahunta 2007) was published to enable a more detailed and complex understanding of this work's achievement. Several writers contribute to the manual, where we can find a recording of the thinking that came up from the creative process and, in other texts, identify the work's position in the context of digital culture and the dance-technology scene.

For deLahunta *SwanQuake's* process was innovative in two directions: it developed a different way of choreographing, distributing scores among performers and considering the transformative role of the player/viewer and, on a second level, the project innovates with game engines and motion capture in an unconventional way. Birringer reviews various pieces of the company, highlighting their uniqueness and their correspondence to theoretical discourses about the digital double and user/player experience; he remarks that non-verbal communication defies controlling mainstream discourses that flow in a one-to-many model within games industry and information technologies. Sloan reviews trends on participation and interactivity and identifies "landscapes and atmospheres" as features that become prominent, as well as the role of performers to "link between audience and environment" (p. 58). Sloan warns about the fashion of audience experience and interaction, noting that "there is a danger that collective authoring could detract from the expertise provided by the dedicated artist or designer" (p.62)[55] .

I have followed Igloo's work with admiration since 2002[56] and I expected to examine it further in the course of this research undertaking. Several works fit the criteria framework designed for my enquiry very well, and initially I proposed the group as a case study. However, after direct contact with *SwanQuake* (fig.2:7) and *Visitor* (2011) in summer 2011[57], I realised that Igloo's present work is loosing it's link with choreography and dance as the focus of an artistic language. These last pieces appear to

[54] Further insight is provided by Jefferies's interview with Gibson (in Chatzichristodoulou et al. 2009) and Popat's review of *SwanQuake* (Popat 2012).

[55] In "Choreography Cycling Anims" (deLahunta pp 17-26); "Data Art & Interactive Landscapes" (Birringer pp37-52); "Cultural Resonance: Participation, audiences & interface" (Sloan p.53-63).

[56] In an article called "Critical Perspectives on Virtual Dance" (Varanda 2009)

[57] I saw the works as part of my fieldwork in London, at the Barbican Centre (*SwanQuake*) and in James Taylor Gallery (*Visitor*).

follow the tendency towards disciplinary dissolution, which has been associated with new media artworks as I discussed above. As my research became more committed with supporting an argument for disciplinary preservation (when dance performance migrates to new media), this work became less relevant for my project.

Figure 2:7 –*SwanQuake*, Igloo[58]

Laboratories for new epistemologies

Birringer (2008) relates the now well-established tendency towards hybridization - which he finds paradigmatic in performance or visual contemporary arts – with current scientific and techonological progress. Such progress is determinant in the way we live, relate to others and acquire knowledge; when this "contemporary technosphere" (p.XIII) influences creativity and composition, he argues, a digital aestehtics emerges and the practices become "epistemological laboratories" (idem) – although he does not indicate the extent to which practitioners explicitly engage in these terms. He therefore aims at characterizing performing arts that intersect with new media in order to disclose how they produce knowledge or enable knowledge to be produced about the world.

In the historical panorama provided[59], Birringer refers to a wide spectrum of disciplines (including design, music and engeneering) but his relationship with the dance-technology millieu informs this narrative[60]. Familiarity and differences between 'video-dance' and 'digital-dance' are discussed with the reasoning that "the digital is not cinematographic; it produces a machinic vision, an algorithmic writing of data. Its new attributes include programmability, interactivity, and virtuality" (p.18). For

[58] Image from http://www.gibsonmartelli.com/images/SQDresserNu.jpg [download January 2015]
[59] In a section called "Moving throught technologies" (pp.3-74).
[60] We can see in my bibliography many entries with his name covering a wide range of sub-subjects

Birringer 'digital-dance' is emancipated from fixed screen projections and moves towards the stage or installation real spaces, expecting direct contact with the audience. The review is extensive in terms of literature about dance, media and computer technology (with authors such as Dinkla, deLahunta, Boddington, Dixon, Dodds and Manovich); it locates promoters of international events for research networking (such as Ohio Sate University, Monaco Dance Forum, Future Physical, and V2 insitute); it tracks the growing presence of dance and performance experts in electronic arts festivals (Ars Electronica, Siggraph, or Cynetart for example); it identifies creative initiatives with hardware and software; and it evaluates the weight of these developments in dance teaching programmes.

The interactivity section[61] covers several models explained in terms of research workshops, installation sites, or online and stage artworks. Birringer refers to "telematic performance" that connects groups performing real-time in different sites, promoted by laboratories of experimentation such as Shinkansen (in the UK, directed by Boddington)[62] and ADAPT (in the USA, directed by Birringer). In these networked and improvised compositions the streams of image and sound stimulate a common live experience between players and the co-creation of a real-time dramaturgy. These events, he observes on the basis of experience[63], resemble multi-user computer games - but rather than following strict rules and functional roles, they are unpredictable, empowering and transformative practices (p.240).

Interactivity has become a regular feature in theatre performance, which Birringer also reviews; one strand combines with Internet connection, bringing telematic presence to live works - as in pieces by Company in Space from McCormick and Sky in Australia. Other models translate physical gestures into computer signals as in the case of Canadian company Kondition Pluriel (Poulin and Kusch), the Portuguese team SWAP (Costa and Quintas), and Trisha Brown's encounter with the OpenEnded Group (this time by Mathew Causey).

Focusing on interactive installations the author extends on the subect of audience participation and the importance of HCI design in this format[64]; Birringer remarks a shift from "aesthetic contemplation" (associated with theatrical conventions) to the "aesthetic of experience" and how these cases have triggered investigations on

[61] In the section "The Interactive Paradigm" (pp.101-119)
[62] Shinkansen is an antecedent organization of Body>Data>Space which is the project manager of the third case study – *Me and My Shadow*, by Joseph Hyde.
[63] Birringer has directed several telematic projects with his company AlienNation, see http://www.aliennationcompany.com [accessed 8 January 2015].
[64] In a section called "Digital Environments, Wearable Spaces" (pp.179-213).

reception, interface and authorship. He refers to Sharir and Gromala's navigable virtual environment[65] as an early enquiry into tangible and wearable technology, which other artists have later pursued.

Closer to the computer the audience and the self

Kozel's study focuses on mediated presence and embodied interaction. Her writings reflect on the role dance may play in courterpointing the cartesian split pronounced with cyberspace (Kozel 1994), and she provides referential analysis of her experience in collaborative projects (with Sermon and Shiphorst) or with her ensemble Mesh Performance.

Telematic Dreaming (1997, by Paul Sermon)[66] is an acclaimed installation that explored relationships between the televisual body and the material body, the intimate and the social (fig.2:8). It enabled sensual and pleasant exchange between her and the visitors, who could see her telepresent; however, she describes, it also instigated moments of violence and pain. This emotional palete provided a reality check: with the electronic body one can interact with others in remote space, but that experience returns to the real body which, in turn, feeds-back authentic reactions to the virtual representation (Kozel in Carter 1998)[67]: the 'two' bodies are inextricably bond[68]. Movement, she argues, is a specific and vital sign of materiality in telematic interaction, contradicting assumptions that telepresence is an out-of-body experience:

> The famous claim associated with virtual technology is that the body is futile, replaced by an infinitely enhanced electronic construct. If this is so, then why did nastiness or violence enacted upon my image hurt? How could the body be futile yet still exert a basic visceral control over my movement? (Kozel in Carter, 1998 p. 81)

For Kozel this aesthetic experience has political implications regarding self-ownership, contained in the body, and gender issues: because she was lying in a bed codified sexual

[65] This project is described in the article "Dancing with the virtual Dervish", by Gromala and Sharir (Moser et al. 1996, pp.281–286)

[66] Concept, process and documentation at Sermon's website http://www.hgb-leipzig.de/~sermon/dream/ [accessed 12 January 2015]. Kozel was the performer in this piece, which led to her own writing about it.

[67] The installation set up used projectors and monitors divided in two rooms, each with a bed; on a private room Kozel monitors the visitors entering the public room, where they see her projected onto the empty bed and interact with it (with her) - she stimulates them to engage and responds accordingly.

[68] Dixon theorizes this aspect quite extensively (2007), contributing to debates about embodiment, which I develop in Chapter 4 and with the analysis of case-studies.

behaviours often appeared, showing that "gender roles can filter through to cyberspace" (1998 p. 87)[69].

Figure 2:8 –*Telematic Dreaming*, Sermon[70]

In *Closer: Performance, Technologies, Phenomenology* (2007) Kozel draws extensively on continental philosophy[71] and develops a theoretical framework to understand how people and computers connect, eschewing the body/mind presence/absence material/immaterial dichotomies; choreographers and dancers, she argues, have sensibilites and knowledge that bring necessary, and otherwise disregarded, perceptions of digital culture and life with ubiquitous technology.

Concepts such as 'performance', telepresence and interactivity are debated together with the importance of phenomenological experience to test conversational models, when systems respond to human data and humans react to feedback data. Full body engagement in immersive installations produces an affective experience, which Kozel opposes to intractivity generally conceived in computer design; with this empirical knowledge she reassesses tensions between the real and the 'digital-virtual' in a dialogue with Massumi's ideas about the virtual[72]. She applied motion-capture technology to live performance investigating how body movement-data can travel across space and gain other forms. In her piece *Contours* (2000, With Woolford) solid moving performers transformed into choreographed ghosts and abstract traces; here she remarks, the ethical questions are different from the ones raised by video telepresence: how do we relate with others who are 'only' digital data?

Kozel has also researched tangible and wearable computing with Schiphorst in *whisper: wearable body architectures* (2003); they share a similar profile as artist-

[69] This is a critical issue in cyberculture theory, debated by Balsamo (in Bell and Kennedy 2000) to which I will return in the analysis of my second case study – *Soi Moi* by n+n corsino.
[70] Images from http://www.hgb-leipzig.de/~sermon/dream/ [download December 2014]
[71] Kozel frames her argument on a phenomenological relationship with (and through) computers and networks with theories from Merleau-Ponty, Deleuze and Guatari, Levinas and Derrida.
[72] As I mentioned above he discusses the body, the virtual and affect (Massumi 2002).

researchers with common interests; while Kozel's work targets performance, Schiphorst specialized in using somatic practices and dance performance as references to inform HCI design. She authored another acclaimed installation - *Bodymaps, Artifacts of Touch* (1996) - where a horizontal screen reacts to touch, generating sounds and making a projected female body move[73].

Embodied interaction (Dourish 2001) is a central concept to Schiphorst's practice, but she underlines body movement and touch as determinant to first-person experiences with technology, extending the potential of tangible computing for self-awareness through the body (Schiphorst 2008). Phenomenology and Pragmatism are major philosophical frames of her work; she describes *Softn* (from 2007) as "an interactive installation that explores the somaesthetics[74] of tactile interaction" (Schiphorst 2009b, p.2430), and with *Exhale* (also from 2007) a wearable computer garment, she aimed to enable social interaction on the basis of sensorial body data and enhanced body consciousness (Schiphorst 2009a).

Interface and performance revisited

The convergences between dance and the computer have significantly expanded since deLahunta's review in 2002 and the growing interest of academic circles that accept practice-based or practice-led research is notorious. Between 2005 and 2010, Bench points out, Causey, Dixon, Giannachi, Baugh, Birringer, Broadhurst, Kozel, Case, and Raley, "published single-author books in this growing interdisciplinary field, which abuts theatre and dance studies, visual and performance arts, performance studies, digital humanities, and philosophy" (Bench 2011, p.94).

New approaches revise the practice again, add names to the map and customize frameworks, which are informed by, and informative about practices. The following insights did not add significantly to the map I have already traced here, but they are worth acknowledging as signs of research continuation.

In *Dance Technology Interfaces*, Valverde (2010) organizes a number of works in four interface variations: one-way interfaces generate media representations of performers; chance-operating interfaces superimpose multiple elements aleatorily in live performance; biased-interfaces expose political implications of digital technology;

[73] This work is cited in many articles and reviews of events about dance, HCI and installations. The piece uses a sensor surface that detects the visitor's touch and pressure on the velvet cloth where the artist's body is projected. The system responds with sounds and the person moving sensually inside the frame.

[74] Somaesthetics is a philosophical approach devised by Richard Shusterman (2000 and 2008) that critically studies the aesthetic quality of somatic experience and hence perception, of the world. This theory frames Schiphorst's research in HCI, which I discuss in Chapter 3 as a tool for analysis.

and reflexive interfaces integrate the audience and reflect on the technology itself. Valverde's discussion on the term 'dance-technology' is helpful, but the pivotal term 'interface' is used too broadly in my view: the dividing criteria are confused and their connection with the themes of corporeality and performance is overwhelmed by the powerful authors she engaged with (such as Hayles, Harraway and Foster). As a practitioner Valverde has been developing *Senses Places*[75] since 2011 - an international dance improvisation, where performers meet in Second Life online community.

Salter returns to disputes between performance and new media - In *Entangled…* (2010) - and dicusses implications in presenting theatre and dance beyond the stage. Alongside with music, architecture, video and robotics, he dedicates a chapter to body-based arts. Salter reviews dance-technology practices (following technological criteria), and relates them to concerns of reproduction, transformation, amplification and documentation of the ephemeral. It is reassuring to see a commitment to demonstrating, to media scholars and artists, the worth of bringing forward performance perspectives; however Salter does not add notably to the account of practices, concepts and methods explored by predecessors such as the authors mentioned above.

In *Moving without a body…* Portanova (2013) examines the translation of physical movement into numerical code and drives a philosophical enquiry about movement. In 2013 I was immersed in inductive research and therefore could not update my methods and theoretical arguments on the dance medium with this new reference. Nonetheless I searched for support, in Portanova's discourse, for discussion about virtual performers regarding my own case studies; however, her focus in embodiment as a site of reception and affect did not contribute to my concern with anthropomorphic representations.

2.4 Dance and the Internet

The studies concerning affairs between dance and the computer, which I have discussed above, also provide informative insights into how dance practitioners and scholars have addressed Internet communication and the World Wide Web's potential. For example, Corin (1999) interviews Compagnie Mulleras about their web-based dance series; Dixon (2007) analyzes migrations from theatre to cyberspace and pinpoints creative user input, self-representation with text and chat room encounters as featuring

[75]Valverde describes *Senses Places* as a "Mixed Reality Participatory Performance Environment" see http://sensesplaces.wordpress.com/ [accessed 20 January 2015].

characteristics; and Birringer (2008) distinguishes two main variations on telepresence: interactive 'networked compositions' that coalesce on stage, and 'transmission performance', where site-specific live-acts or theatre performances broadcast online.

Because cyberspace, networked collaboration and virtual environments are a frequent subject in new media theoretical writing, these are valuable sources to understand how dance and the Internet can relate, why artists follow certain models, or which theoretical debates emerge around them. As I indicated above, such writings cover many topics - within such a range the studies about Information art (Wilson 2002), interactive design and art practices (Bolter & Gromala 2003), Internet art (Greene 2004), or virtual art (Popper 2007), were particularly instructive to my analysis of case studies.

The use of Internet connection and online cyberspace for professional creative practice in dance is explicitly and autonomously discussed in just a few texts; moreover, the pattern of multiplicity, which characterizes the overview about 'dance and the computer', is repeated in the area of 'dance and the Internet': electronic communication, media and mediation are used for different purposes and the theoretical studies group projects under different principles, which may not signal technological affiliations or artistic intention; practices consequently overlap different classifications.

I prioritized reviewing sources that clearly contribute to identify and contextualize new media dance artworks, which have explored the Internet to do so, such as Popat, Fildes and Bench. However, the Internet also plays an unparalleled role for the archive, notation and analysis of contemporary dance – as are the projects accounted for by deLahunta, Whatley and Zuniga Shaw. Web pages and blogs are also important as tools that ensure visibility and enable community networking for dance: I propose to close this section by summarizing two cases.

The web as a site for creative practice - Sita Popat

Invisible Connections: Dance, Choreography and Internet Communities (Popat 2006) stands out, to-date, as the monograph that addresses, in greater detail, what the Internet means for creative expert activity in dance. Popat's study includes her own practice-based research; a revision of practice models that includes many artists; identification of topics related with cyberculture and assisting theoretical frameworks; and speculation on future developments. Interactivity and the Internet, the author highlights, bring interesting challenges to performance making and performance sharing because online-devising, remote collaboration and new dance communities are enabled by Internet

connection and digital media. When this experience opens to multiple and anonymous users, who participate from their private locations, Popat sees that the 'fourth wall', edified in the proscenium stage, is effectively trespassed; she will argue however, that only computer-mediated communication (CMC) does so. In HCI reactive systems such as Igloo's CD-Rom *WindowsNinetyEight,* the user interacts with predetermined codified data and here, for Popat, the proscenium divide remains.

In three different projects regarding people, method and goal, which she directed between 1999 and 2002[76], Popat used real-time or asynchronous communication to involve about a hundred performers. From various locations in three countries, the participants followed common orientations, exchanged text or videos online, and devised new choreographic works. The computer was an interface for people to take part in a shared creative process.

Although Popat prefers CMC as a model of interactivity (instead of HCI), she learned from her practice that visitors, who may not be *a priori* engaged in a project, or be part of an existing community, tend to restrain participation to the level of watching and commenting. Skills and exposure implicit in performance can be intimidating and therefore, although visitors can engage physically, their position is not very different from the contemplative spectator in proscenium theatre[77]:

> The external or distanced viewer is a natural role for the online participant, distanced by space and in the case of asynchronous work by time as well. This situation seems to invite a voyeuristic type of engagement. (Popat 2006, p.138)

While discussing what current technologies and interactivity models offer, Popat reviews theatre practices, such as Dixon's *Chameleons 3, Net Congestion,* (2000) or Ascott's *La plissure du texte* (1993), and works from a dance context, such as Lord's web-dances, Kozel's installations or the stage performances from Company in Space[78].

In the creative projects that proliferated in the mid-1990s, Popat identifies two major tendencies to use Internet: a) with display in web-pages where the user interacts with video or animation sequences (HCI), and b) with video conference and text chat-

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[76] Popat explains in detail the aims, methods and results of *Hands-On dance Project* (1999-2000) *Triad* (2000) and *Eurodans* (2001); these are resourceful examples because they are well documented and analyzed, allowing replication with updated technologies and institutions with similar purposes.

[77] See section one in the subject of interactivity for the difference between physical and psychological interaction discussed by Manovich, Dixon and Paul.

[78] Popat describes and contextualizes these works in detail (in Chapter 3), providing critical and descriptive review, of thematic concerns, technical constraints and audience feedback. I am referring to Lord's work as an example of HCI, but Popat also refers to Troika Ranch and Roberta Shaw.

room models that enable networked collaboration and broadcast to screens in the computer or in physical sites (CMC)[79].

Lord, who studied dance and was a web and game designer, joined the two areas quite early with HCI models[80]. In *Progressive 2* (1996) the screen displays short compressed videos of the same choreography in nine windows, which can be 'clicked' on and off - Popat sees this layout as a direct consequence of technological constraints and thus the work is "a comment on the nature of web-based work at the time" (p.51); *Lifeblood* (1997) tells a dance story in a text page, which we can 'navigate' horizontally or vertically (fig.2:9); with *Brownian Motion* (1997) the user plays with human figures and objects, which change directions and appear or disappear with mouse clicks[81].

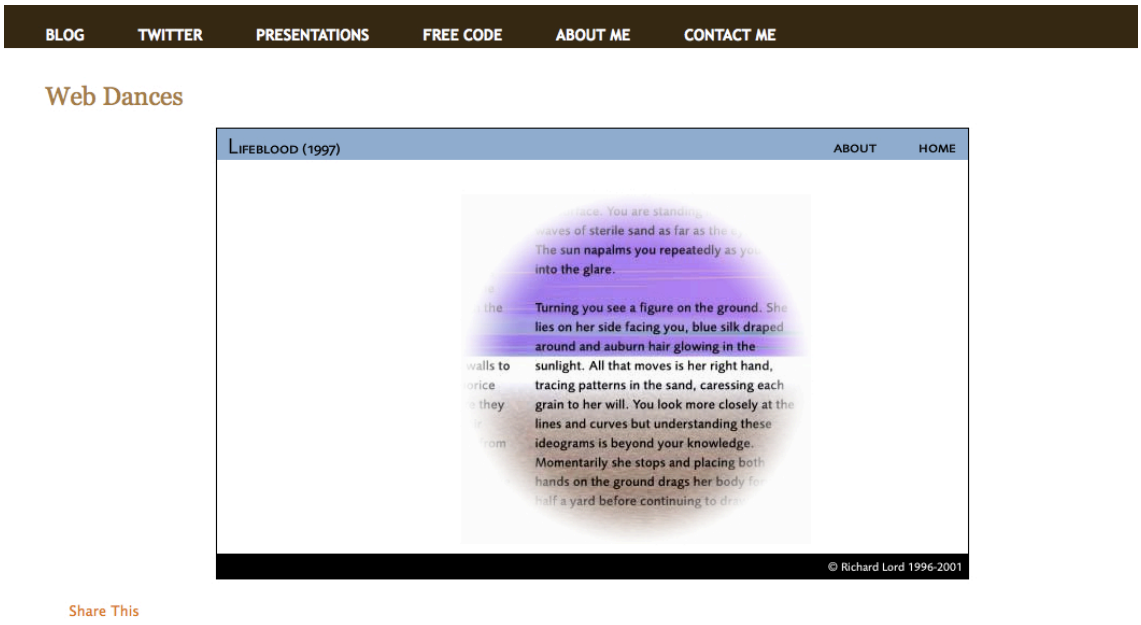

Figure 2:9 –*Lifeblood*, Lord[82]

Kozel's practice is a reference in CMC systems and Popat analyzes *Telematic Dreaming* (with Sermon, 1992) and *Ghosts and Astronauts* (1997). In this later work Kozel experimented with low-budget and user-friendly technology, using the Internet video conferencing system CU-SeeMe, to connect remote dancers into a performance space, where they become virtual performers and interact with physically-present dancers, to a co-present audience. Company in Space is referenced with two works: In

[79] Accommodating big projections and smartphone screens, considering that laptop/desktop computer screens are middle size references, increases complexity to the subject of this research. Often artworks are conceived for small screens, but these can be turned in wider projections, if a beamer is added and the resolution of the files supports such an extension.
[80] Still available online in http://www.richardlord.net/dance/web-dances [accessed 15 January 2015].
[81] Valverde (2010) inspected this work, as case of a one-way interface.
[82] Screenshot from http://www.richardlord.net/dance/web-dances

Escape Velocity (2000) the video imagery of a dancer performing in Australia was projected over the body of Sky (the director) who was performing on stage in the USA (fig. 2:10); in *CO3* (2001) remote dancing was attended with motion capture, enabling the virtual human to perform in the environment projected on the stage in London, with the physical dancers. Other identified CMC projects were made by Laura Knott (1998)[83], Lisa Naugle (1997) or the ADAPT collective (2000), who communicated through movement, within university or professional contexts, converging in chat-room platforms (Popat, 2006 p. 54-56).

Figure 2:10 –*Escape Velocity*, Company in Space[84]

Some dance-works, although less common, were designed for spectators to contribute to the choreography with online input, as in the following examples. Popat describes Koplowitz's *Bytes of Bryant Park* (1997) as an innovative experience where "the dance was choreographed using ideas and stimuli provided by the visitors to the Webbed Feats web site" (2006 p.58); these stimuli were then selected and interpreted by the dancers performing at the park in New York. *M@ggie's Love Bytes* by Steggell (1995) was a real-time performance, transmitted online, to which the website visitors could submit text, picture or sound files; this input was projected in the dancer's private space, which in turn was captured and streamed back to the audience (fig.2:11).

[83] The *World Wide Simultaneous Dance* (Knott 2001).
[84] Image from http://www.companyinspace.com/gallery/image/ESCAPE03.JPG [download March 2014]

Figure 2:11 – *M@ggie's Love Bytes*, Steggell[85]

For Popat there is a promising future for online dance performance with the potential of combining text messages, game engines with 3D avatars, space navigation in 3D environments with changeable POV, real-time collaboration in MUDs[86], database movement sequences, wide screens and fast broadband signal. Despite the technological development achieved since then, not many artists embraced this potential, as Birringer pointed out (2004), and my own research undertaking reveals. Such neglect and underdevelopment, Popat suggests, may be explained by the distancing from the 'organic', and the humanist notion, which still prevails in contemporary dance, that unmediated presence ensures realness, authenticity and uniqueness in a body-based art form.

Online dance performance, Popat remarks, deals with the body/mind split, inherent in Cartesian philosophy, which dance practice and theoretical writing tend to oppose and deconstruct. She nonetheless foresees interest in moving practice and research forward, because the vocation to deconstruct dualisms, is natural and part of an ongoing epistemological enquiry for dance, can inform the electronic network with an increase of embodied interaction; as indicated above this was a core subject for Kozel (2007), which Dixon comprehensively covered (2007).

[85] Image from http://hyperchoreography.org/images/fig4_b&w.jpg [download January 2014]
[86] MUDs – multi user domains – are platforms that enable collective assembly in cyberspace, which were primarily developed for multi player games, and have been discussed in relation to theatre (Schrum 1999) and performance (Dixon 2007)

Dance migration from media to hypermedia - Fildes and McPherson

Fildes and McPherson have developed a practice-based enquiry with medium-specific artworks, which use Internet connection and hyperlink navigation. Committed to identifying practical and theoretical discourses, they created hyperchoreography.org in 2000[87], which is an informative web-site that gathers works and writings from these and other authors[88]. Hyperchoreography, Fildes explains (2008), is a term that assimilates the principles that Ted Nelson outlined for hypertext[89]: populism, because it is a low cost and widely-available technology; pluralism, since multiple points of view can cross over and merge together; unorthodoxy, because experimentalism and activism are nourished; and universalism since it expands geographical and cultural delimitations (Nelson 1987). Fildes describes hyperchoreography as being:

> A non-linear dance performance 'space'. It only exists in an interactive and/or networked medium (…) and allows a choreographer/artist to create work that can be sequentially altered by a user at the point of interaction, moving through hyper-linked moving images (Fildes 2008 np).

The web-site gives access to Fildes' and McPherson's work in this area (fig.12). In *Big* (2002), a bar on top of the page displays small films of a dance in a studio space and a table of numbers indicates the variation of existing clips; the user chooses what to play and for how long, following that instant and personalised composition in the upper line made of four windows. *The Truth : The Truth* (2004), recovers the short-clip model, with long, mid, and close-up shots of four dancers in a site-specific location. The screen splits into two sides, corresponding to two different choreographies for the same cast, and the user-spectator clicks to activate the available clip, composing with the media in two ways: by deciding the order and repetition of films in each side and by defining the combination between them. The users can record and appreciate the result afterwards until they start again or log off; this feature, which did not exist in *Big*, reinforces the sense of choreographic composition, even though the result is an ephemeral film.

[87] http://www.hyperchoreography.org/index.html

[88] The website draws together texts that address similar questions regarding creative dance practice with an artistic intent, to show on websites and electronic networks and in doing so links to the work of other artists and researchers (such as Lord, Whyte, Steggell and Bench).

[89] Nelson is the inventor of hypertext (see Landow 1992; and Bolter & Gromala 2003).

Figure 2:12 – *Big* and *The Truth : The Truth*, Fildes and McPherson[90]

Fildes considers these works as "a natural development of the non-literal/non-representational/non-narrative screen dance work" that they produced earlier[91] and as a concept hyperchoreography mainly offers, he suggests, a "form rather than content". In *The Truth : The Truth,* the impossibility of authenticity and short life of truth are a thematic concern, which reflects new media and postmodernist paradigmatic views. Fildes acknowledges that Cunningham, Brown and Rayner have inspired his work with McPherson; those choreographers liberated movement from expressionist and narrative

[90] Screenshots from http://www.hyperchoreography.org/big.html and from http://www.hyperchoreography.org/thetruth.html [accessed December 2014]
[91] (see McPherson 2006)

functions and used chance operations to develop artworks, which he sees as suitable models for practices that engage with digital technology. Fildes adds that hyperchoreography strongly connects with music techniques such as mash-up, scratching and sampling, developed from the 1970s onwards, and with the values of hacking culture: to reject hierarchies, mistrust authority, promote decentralization, share information and serve your community – these are claims that he finds close to those of Rainer's manifesto 'No' To spectacle… (in Carter 1998, p.35), which have been powerful influences in European contemporary dance.

Hyperdance, no-place and social dance media - Harmony Bench

Further enquiry about online dance performance is found in the work of Bench, who has focused on dance works presented as films and web-pages, and discussed their position within performance studies and critical theory. Bench effectively articulates the resonant notions such as 'Corporeality' (Foster 1995), 'Liveness' (Auslander 1998) 'Posthumanism' (Hayles 1999) and 'Remediation' (Bolter and Grusin 1999), which inform her analysis of specific dance cases. She also connects these with core principles of other works such as new media art, hypertext literature, contact-improvisation or haptic cinema (Bench 2006b).

In "Hyperdance: dance onscreen, dance online. Or, what difference does the medium make?" (2006a), Bench sustains considering 'screendance' as a broad field, inclusive of multiple ways of using the screen; however she argues "analyses should be particular to the screen and dance in question" (p. 90). Hyperdance is a term that she coined for works that join the computer screen, multiple media, and user input. Works fitting this category are "medium-specific", and correspond to four principles that differentiate hyperdance from other screendance works: a) they are accessed with a browser and organized in a structure of hyperlinks, b) their main components are still images, movie files or other malleable content (such as text, sound and graphics), c) the prevailing models of interaction are clicking or tactile screens.

Bench articulates a theoretical discourse concerned with "Computational Choreographies", which "forge alternate connections between choreography, performance and the archive as they push dance into the mediatized space of the Internet" (Bench 2009b, p.168). In this way, she argues, they destabilize conceptualizations of performance as an action in disappearance, which, as Phelan once argued (1993) is not compatible with recording and electronic reproduction. In later articles, also supported by case analysis, Bench considers that hyperdances inhabit a

"no-place" where choreographic utterances are disconnected from cultural and physical references of space and time progression (Bench 2008) and that dance practices have a specific way of using social media for crowdsourcing, creating flash mobs and generating viral choreographies (Bench 2010).

Throughout her extensive research on what she ultimately calls 'Dance Media' - since she refers to practices that are not exclusively hyperdances (2009a) – Bench analyses many existing and otherwise less scrutinized works, decisively contributing to map the field (fig.2:13). These include explorations from artists such as Fildes and McPherson (*Big* 2002, *The Truth : The Truth* 2004 and *Move-me* 2006-2008), Marikki Hakola (*Triad NetDance* 1998), Nicolas Clauss and Didier Silhol (*Sonnambulles,* 2003), Igloo (*WindowsNinetyEight* 1999) Lord (*Waterfall* 2002), Richard Siegal (*If/Then Open Source* 2007–present) Carolien Hermans (*Trilogy* 1998 and *Bibap Project,* 2008) Filipe Viegas and Brahim Sourny (*Move Out Loud: The Biggest Choreography Project Ever,* 2008), or the Dance Theatre Workshop collective (*Twitter Community Choreography,* 2009-present)[92].

Figure 2:13 – *Sonnambulles*, Clauss and Silhol; and *Bibap* Hermans[93]

[92] I have restrained from summarizing the ideas, technologies and other process characteristics of these artworks since they are in most cases thoroughly discussed in the writings cited.
[93] Screenshots from http://www.somnambules.net/ and from http://www.bibap.nl/bibapProjectloadNL.htm [accessed December 2014]

By discussing this practice while drawing on contemporary theoretical frameworks (from Performance and New Media studies) Bench clarifies building concepts of theory. Sometimes her approach is genealogical and she traces connections between dance and print notation, cinema, computers and electronic networks[94]. Moreover Bench locates and demonstrates how dance artworks are inspired by, and comment on, subjects of cyberculture such as the popularization of social media, the fragmented and navigable structure of hypertext, and audience participation.

Bench's work has consolidated an important study in this area, which is undoubtedly resourceful in terms of the current research undertaking, and we pursue similar methods and objectives. For example, she connects issues underlying dance-media practices with core subjects for Dance Studies and this supports my claim that the first deserve more attention from the later. However, I miss the critical perspective in her writing that focuses on the aesthetic quality of the works, which is, in my view, necessary to maintain the status of these practices as specific to a discipline and professional context.

Analytical and archival tools for dance in cyberspace – Forsythe and Davies

Synchronous Objects for One Flat Thing, reproduced (2009) is a study developed by Forsythe with Ohio State University for a web-site[95]. The choreographer wanted to 'objectify' choreography and suspend its ephemeral condition in order to reveal the complexity of "choreographic thinking"; by making that transient knowledge visible and understandable, Forsythe was driven by a pertinent speculation: "could it be conceivable that the ideas now seen as bound to a sentient expression are indeed able to exist in another durable, intelligible state?" (Forsythe 2009) [96].

Pallazzi and Zuniga Shaw (2009) explain how the multidisciplinary team used computer annotation, graphics and animation to visualize the relationships and movement scores of 17 dancers performing on a grid scenario of 20 tables[97]. With Forsythe they translated the choreographic structure and correlations in data, parsing the dance into component parts to generate abstract representations, which the visitor to the website - expert or causal - can interact with. In that visiting position, watching

[94] Our methods here are close and follow the contextual approach substantiated in several sources in new media studies (Bolter & Grusin and Manovich).
[95] (http://synchronousobjects.osu.edu)
[96] This project follows Forsythe's enquiry with the dance and technology CD ROM.
[97] The score is from Forsythe's original stage piece *One Flat Thing, Reproduced,* 2000.

these visualisations was a breathtaking experience - and the processing system, which is thoroughly documented, is excitingly sophisticated and clear.

Siobhan Davies RePlay (2009)[98] is a project that brings together 30 years of documentation material about the choreographer's work. The archive, developed by Coventry University under Whatley's direction, was designed primarily for the research community, but other users, unfamiliar with contemporary dance and Davies' legacy, were also targeted. Because the collection concerns a living choreographer it exceeds the traditional retrospective function of archives; Whatley and Varney (2009) explain how the project became "an active tool to be used in her own current contemporary practice, allowing her to question, retrieve, analyze and draw from hundreds of hours of video footage" (p.57), which influenced the company's future methods (fig.14).

We can choose different entry points into Davies' work: watching videos of performances or rehearsals, choosing from still images, or reading about thematic concerns, teams involved and critical interpretations. This "new way of encountering choreographic structure" (p.58) was valued by Whatley and Varney, but they described a laborious work, that is likely to continue, to keep up with upgrading technologies and to negotiate issues about copyright, intellectual property and represent an ephemeral three-dimensional art form.

For deLahunta and Zuniga Shaw (2006), endeavours of this kind are "choreographic resources" that question normative features about dance (as an art that requires unmediated encounters between performance and audience), and the recording and documentation of artworks, which fulfils the needs of scholarly research, professional promotion and public dissemination. Alongside other cases, from Greco and Scholten or McGregor[99] the authors see that the examples of Forsythe and Davies question the inferior status of dance documentation:

> One could argue that while the dance may disappear, a valuable creative resource remains. More than a mere 'trace' this resource is useable and generative in a variety of ways. It can be transmitted and disseminated; it is transferable and renewable; and it can carry compressed information that can feed back into the choreographic process (deLahunta & Zuniga Shaw 2006, p.2).

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[98] http://www.siobhandaviesreplay.com/ [accessed 2nd March 2014].

[99] Updated reviews and further discussion of these projects are given in later and more comprehensive publications (see deLahunta (et al.) 2007; deLahunta & Shaw 2008; Whatley 2013); more choreographic resources available online have been developed, such as the TKB transmedia knowledge-base for performing arts (Fernandes 2013) available at http://tkb.fcsh.unl.pt/kb-introduction [accessed 3rd June 2014] and Motion Bank, by the Forsythe Company (http://motionbank.org/en/content/about) [accessed 15 December 2014].

The projects concerning Forsythe and Davies (fig. 2:14) have no intention to be dance artworks per se or generate performances from digital archives. They nevertheless have used the Internet conspicuously for the interests of dance, as an expert artistic practice, and I see them as remarkable models: they are "medium-specific" (Hayles, 1999), develop migratory processes that artworks can adapt, and expand possibilities three dimensionally: we can see the dance in greater detail, more often and on a global scale.

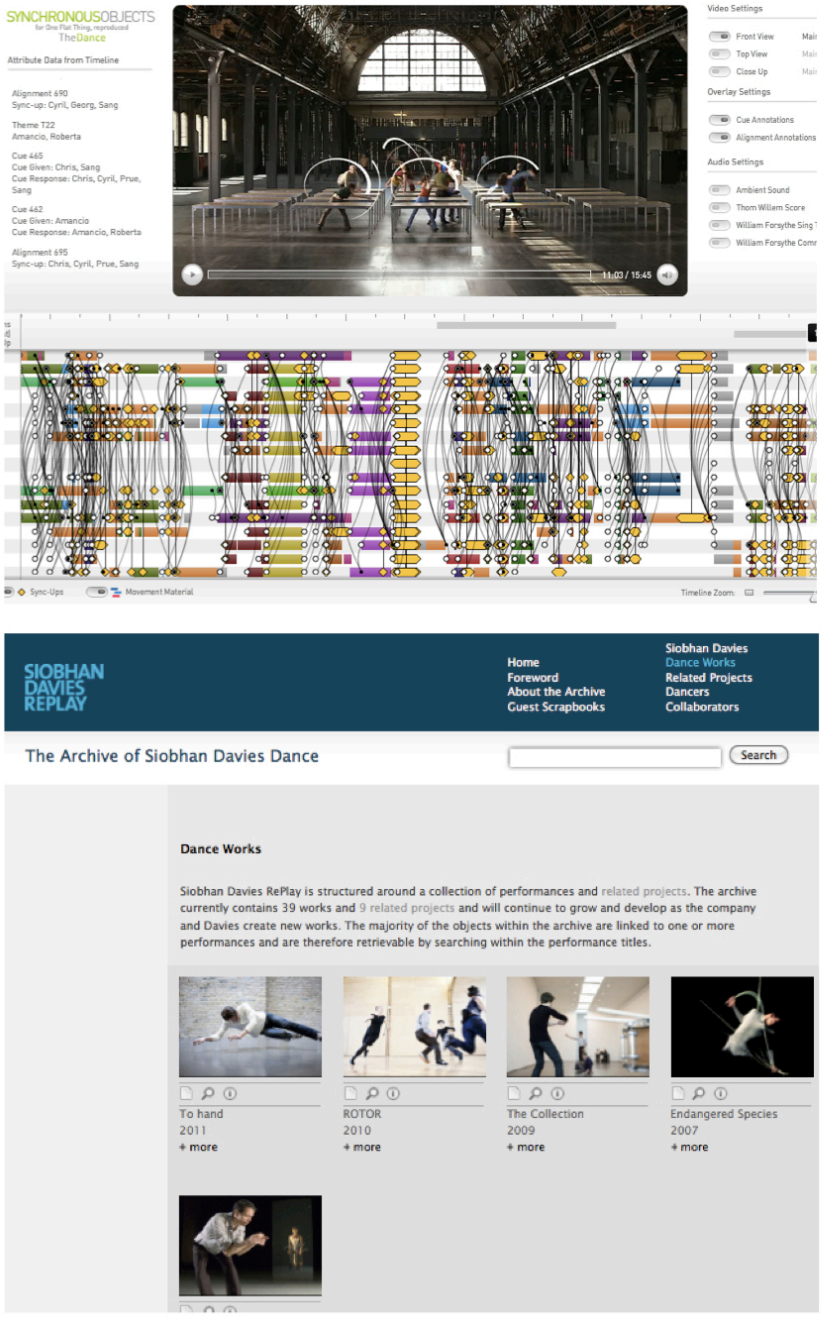

Figure 2:14 – *Synchronous Objects*, Forsythe; and *RePlay,* Davies[100]

[100] Screenshots from http://synchronousobjects.osu.edu/content.html#/TheDance and from http://www.siobhandaviesreplay.com/ [accessed March 2014]

Community, networking and showcase for dance and technology

Displaying information and gathering specialist communities is common usage of the World Wide Web, which the dance professional *milieu* has also explored. Contacts, artworks and knowledge converge on the web and become available internationally, enabling awareness of existing communities, groups, projects, and research. Informative and networking websites are important for dance outreach as a contemporary art form and they also give visibility to the medium-specific practices (creative or archival) that were reviewed in this section.

New media dance artworks affiliate with the discipline of dance but they cross fields, and are often classified and grouped by the media and technologies employed; it is then not uncommon to find them showcased in multidisciplinary and communal websites such as rhizome.org, digitalARTi and turbulence.org[101]. A more specialized website is dance technology zone[102], which is a resourceful repository for the work of artists and writers during the 1990s, and reveals the vitality of an early phase of the dance-technology community; the website was updated until 2001 with contact lists, forum discussions, bibliography, critical texts and news on software development.

Currently running is dance-tech.net, a platform that allows members to store, advertise, communicate and broadcast, managed by Solano, with a database of practitioners and resources, announcements and professional networking. The project differs from the dance technology zone because is not exclusive to the relationships that I have been reviewing, between dance, the computer and the Internet. This online community includes more members[103], associated to other artistic areas, and broadcasts with dance-tech TV, films from choreographers, conferences, workshops and other events that, according to the website's statement, promote "the possibility of sharing work, ideas and research, generating opportunities for interdisciplinary collaborative projects".

[101] DigitalARTi and Rhizome still keep a stronger connection with visual, moving image and sound art while Turbulence is assumed to promote networked performance, and through there, we can access a very early work called Mouse.Dance - http://turbulence.org/Works/mouse.dance/index.html

[102] The site was then managed by Scott Sutherland and has not been updated since 2001, http://art.net/~dtz/

[103] The social network had 4000 members in 2009. See http://www.dance-tech.net/ and http://dance-tech.tv/ [accessed 12 January 2015].

2.5 Conclusion - the 'being in between' of dance performance in cyberspace

Ten years ago, as Birringer remarked (2004), Internet and telepresence for live performance were well represented in choreographic research that integrated technological enquiries. But the creative experiences of the 1990s with web-pages or 3D virtual environments, Birringer says, were a short-lived phenomenon and "Cyberdances"[104] did not survive the enthusiasm triggered by such technology (p.165). In his improved review (2008), Birringer includes Igloo's *dotdotdot* (2002) and Stromajer's *Baletika Internetika* (2001-2011), but these artworks are still outnumbered by the stage or studio-based collaborations that he has also addressed.

Although I have mentioned difficulties in finding the expert artistic practice that I was looking for, during my survey on the field, my research undertaking demonstrates that Birringer's assumption is only partially correct today: in the field practice kept on developing and the focused studies of Popat, Fildes and Bench provide an accurate and positive picture. It is nonetheless significant that the CMC model informs so many artworks. This model has been privileged, I argue, because performance artists emphasize a commitment with the live body: although telepresent, choreographers or performers ensure in that way that they remain engaged in the work when the transaction with the audience occurs. Given this realization, choreographers who want to instantiate dance performance in cyberspace, might find better understanding of their techno-aesthetic enquiries, as Popper would say, within digital art circles.

From this review it is also noticeable that performance artists appear to have focused more in methodological enquiry, in order to understand the implications of new technology to their practice, while new media artists seem to engage more with audience participation and critical approaches to cyberculture. Finally, although from here we can read that indispensible effort has been made to interpret epistemological and critical positions, argued to be underlying the dance practices that use computers, in all the studies I have reviewed, aesthetic judgement and evaluation have been eschewed. Thus I have identified this to be a subject where my research undertaking is potentially original. The next chapter develops the methodological terms in which I propose to do so.

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[104] I have avoided to use the term 'cyberdance' to designate my object of study because I want to avoid the connotations with genres that I see in this type of classifications, as in video-dance, or the hyperdances or hyperchoreographies that I have referred to here. I will return to this topic in Chapters 3 and 4. Cyberdance is a term developed by Sharir, who is an early researcher in dance for virtual environments and 'cyberbodies' (see Sharir in Corin 1999; Boddington et al. 2008; and Sharir 2013).

3 Chapter 3 – Research Methods

Committed to investigate the ways in which dance as a professional and academic discipline can engage with creative production and presentation in cyberspace, this research undertaking aims to conciliate emergent artistic practices with theoretical understandings of dance, performance and new media.

In Chapter 1 I designed an hexagonal frame of criteria that sets qualitative and technological specifications for the works under inspection and indicates theoretical sources, which contribute to understanding what they are and draw on their evaluation. In Chapter 2 I explored the meaning of such technological specifications and accounted for relationships between dance, computers and the Internet, which developed over the past twenty years and contribute to their contextualization.

This chapter concerns the research methods developed in this study, which is embedded in a tradition of qualitative research (Denzin & Lincoln 1994), and associated with a constructivist agenda to account for local and specific realities. An inductive approach was undertaken, based on a case study research design, and a model has been devised to analyse three cases, in Chapters 5, 6, and 7.

3.1 Outline of a qualitative research

This section presents the outlines of my qualitative enquiry and preliminary questions that informed my choice of research methods. With the conceptual use of metaphor I have conducted the study of an under-theorized phenomenon, following an inductive process to assemble an interdisciplinary theoretical framework. The influence of my position as a dance expert in a process of methodological bricolage, to develop a constructivist project, is also disclosed.

Migration as conceptual metaphor to cross over divides

In Chapter 1 I associated perceived gaps in practice and in theoretical writing with the newness and specificity of the new media works developed by artists who come from a tradition of live dance performance. Auslander, Birringer, Dixon and Popat remarked before in their studies, some of which cited above, that disciplinary divides and binary

thinking justify some constraints that I would argue can intimidate practitioners and scholars from engaging further in this area; dance performance in cyberspace, I argue, is 'in-between' what I distinguish as two different territories: the live/physical/real and the new media/digital/virtual.

Despite the exceptions identified in Chapter 2, discourse within dance and performance studies is calculated on live practice and thus operates with concepts conventional to theatrical, unmediated and ephemeral artworks; hence some philosophical and aesthetic debates, which inform this research, are absent from those traditions of writing. On the other hand, new media theory, although rich on the subjects of technology and mediation, is limited in its address to dance performance.

To facilitate my study I imagined a phenomenon of migration between territories; this conceptual framework enabled me to assert the medium-specific qualities of the discipline within the discipline, and examine how they transfer and transform to medium-specific practices where other technologies and critical issues develop. In order to discuss what dance becomes when instantiating as performance in cyberspace, and thus address aesthetic quality and cultural significance, we must understand both the medium of dance and the new media, which make these artworks a pragmatic truth, rather than a speculative hypothesis.

The metaphor of 'migration' is a model that I am using to organize my thinking; I am "transferring", as Hanstein suggests "meaning from a familiar concept or area of inquiry to one of less familiarity" (Hanstein 1999b, p.75). This is a conceptual use of metaphor that facilitates understanding an abstract or unstructured subject matter with reference to a more structured subject matter. With the expression "family resemblance"[1], Fraleigh identifies aims in dance research: achieving classification of different purposes in culture as well as the diverse genres and styles that come across geographical and historical clusters (Fraleigh 1999, pp.3–6). 'Family' is a metaphor that reinforces the importance of belonging and identity - when looking for resemblance we search in the known to find the genealogy of the new.

Acknowledgement of genealogical connections informs my comparative strategy to examine a recent and relatively minor practice with reference to an older and much-theorized dance practice; this approach is common in new media studies: with the concept of "remediation" Bolter and Grusin examine how older media refashion into

[1] Fraleigh is borrowing from Wittgenstein's *Philosophical Investigations* (1963).

newer ones (1999)[2] and Manovich looks back at previous media in order to distinguish "what is new in new media" (2001); while these writers highlight substantial transformations they also argue that practices retain certain characteristics, which are embedded in their own traditions and transfer when new media are involved.

However, for my subject, the idea of migration between territories seemed to better express the separations between the physical-live and the digital-virtual that I perceived[3]. By considering that in crossing borders and exploring territories the artists engage in migratory processes, we can then examine how mobility affects the identity of the artworks; identity and mobility are central concepts to migration studies.

For Bretell and Hollifield cross-disciplinary research is crucial to understand the "extraordinary and complex phenomenon" of migration (2008, p.2), and some of their questions are pertinent to my enquiry: why did they move? How do they experience settlement? Anthropological approaches, the authors explain, privilege micro-level analysis on individual experiences to consider context specifications - I have done this with in-depth analysis of cases. On the other hand laws and regulations shape migration flows - in regard to my subject this applies to institutional policies, theoretical interpretations and judgements of value that encourage (or not), mobility.

With this conceptual metaphor we are able to focus on two territories simultaneously, comparing unmediated and new media dance practices and connecting literature from different disciplines in a dialogical way[4]; this permits the process of triangulation[5] (Denzin & Lincoln 1994).

Inductive, theoretical and interdisciplinary framework

Hanstein argued that dance research is largely about theory-generating, because it "identifies phenomena, discovers characteristics, and specifies relationships" (1999, p.65). Although an array of theoretical writing that can be tested today (as we find in

[2] Bolter and Grusin's theory of "remediation" has been applied to study digital expressions of performance such as virtual theatre (Giannachi 2004) and hyperdance (Bench 2006a).

[3] I feel particularly comfortable with space metaphors to visualize concepts and relationships. This might result from my body-knowledge and enhanced body awareness from many years of dance training. But metaphorical space is also a central issue in this thesis, since the phenomena are located within a cultural construct that some people call cyberspace, which is a designation that I have adopted.

[4] Considering this as a territorial issue also avoids separation between disciplines. I am not studying dance from a 'new media perspective', nor studying media from a 'performing arts perspective', although I have indexed the literature with these three major categories. As general fields of study they encompass several disciplines and their perspectives and methods.

[5] Triangulation is a method of validation explained in Denzin and Lincoln's *Handbook of Qualitative Research* (1994), which I have used in several moments throughout this research: engaging with the literature, collecting empirical material and analysing the cases.

Carter & O'Shea 2010), my research is still about generating theory because very few writings exist on this subject.

I started with an inductive approach to the literature with these questions in mind: What is 'out there' that relates to my subject? Which terminologies are used? Which themes are discussed and under which theoretical lenses? And what are the missing points? According to Creswell an inductive process of analysis means "working back and forth between the themes and the database until the researchers have established a comprehensive set of themes" (Creswell 2013, p.186). This process, he writes, normally sets out from observation of participants and the bulk of the literature appears in the last part of the thesis. Instead, with the previous chapter I drew a contextualizing map for my study, treating texts and theoretical writing as field-work materials. But this inductive approach was equally effective in identifying central issues, bridging topics, presenting the results of other studies and consequently substantiating the major research question (idem p.48). With this survey I discovered the problems of adopting a fixed type of new media, the tendency to disregard disciplinary differentiation, and the focus on audience experience in discussions about interactive arts. Only then I designed the hexagonal criteria frame (fig.1 in Chapter 1), which became essential for the research development.

My commitment to qualitative and technological specificities determined the choice of theoretical references. I have argued that locating this enquiry within Dance Studies is indispensable because building issues such as body agency, performer identity and choreographic process are only discussed in detail there. However, the discourse identified intersects with that of New Media Studies, which theorize from the territory that these practices 'migrate to'. Performance Studies are involved because dance is a performing art and some issues are only debated in the broader scope of this field.

I called authors from different disciplines to gather around the same table and participate in the discussion of particular topics. They contributed to my construction of an interdisciplinary theoretical framework, which I return to in the chapters that follow; sometimes the theoretical writing is explanatory and in others it provides interpretive lenses through which to examine the complex phenomenon.

Engaging with this literature has improved my proficiency with specific registers allowing description and conceptualization and I have been able to identify interesting connections as well as some inconsistencies. While some keywords have been efficaciously used before in dance films (mediation), installations (navigation) and

live performances (interactivity), other vocabulary required revision when applied to dance. Words like 'medium', 'mediation', 'digital', 'virtual', or 'hypertext', for example, seem to be used, across the discourses, without great clarity. In order to relate dance with these new terms and concepts, I had to track their meaning in the territory wherein they are extensively used.

Reflexivity: the dance *bricoleur*

Another metaphor informing my research methods is the term *bricoleur* – whose emergence dates from the 1980s - which Denzin and Lincoln (1994) use to describe the qualitative researcher[6]. Qualitative research is always situated and dependent on the position of the observer, who collects different empirical materials and chooses from many methodological practices, they say (p.3); each research practice "makes the world visible in a different way. Hence there is frequently a commitment to using more than one interpretative practice in any study" (p.4); consequently multiple voices and different points of view are engaged in dialogical texts that produce new theoretical writing (p.5), or new perspectives with regard to more established discourses.

The *bricoleur* defines the kind of data, methods and interpretive paradigms that suit the needs of the subject, and which comply to the flexible and plural knowledge-making procedures of qualitative research. This process "reflects an attempt to secure an in-depth understanding of the phenomenon in question" (p.5). The *bricoleur* also brings in a particular craft, which in this research undertaking affects the study in two major ways. To begin with, I am a 'dance being'; my solid dance background compels me to explore new territories and acquire recognition within other communities (a sense of expansion), but I search for valuable results for choreographers, writers, institutions and audiences (a sense of preservation). Moreover, I am a multi-skilled professional.

As an expert spectator, I regularly write about dance, interpreting and evaluating other people's practice; therefore, I am inclined towards objectifying and eventually generalize with systematic analysis from an external point of view[7]. However, I also have practitioner expertise and I am sympathetic with the artist's position; this experience is a tool to understand what Melrose calls the "*expert-intuitive processing"*(2012, p.302), that originates the artwork. I also consider intentionality expressed in the artist's voice, thus adopting procedures of criticism, which according to

[6] Denzin and Lincoln follow up from anthropologist Lévi-Strauss, who used the *bricoleur* metaphor before to refer to meaning-making more generally in *The Savage Mind* (1962).

[7] In this work I am expected to speak with authority; the value of my interpretation relies in good part in its evaluative result, ultimately forming public opinion. From qualitative research practice I have learned to beware of the contingency of my subjective interpretations about concrete, true, objects.

Carroll (2008), ensure that ethical principles are respected when we judge other people's practice. My set of beliefs is therefore articulated in this interpretive research practice, where I am practising a "methodological *bricolage"*, which means "performing a large number of diverse tasks, ranging from interviewing to intensive self-reflection and introspection" (Denzin & Lincoln 1994, p.6).

A constructivist project

Lincoln and Guba explain constructivism as belonging to a group of postmodern paradigms, which bring to the research a set of beliefs regarding ontology, epistemology and methodology. In this paradigmatic view, ontology is relativist and based on "local realities" (Lincoln & Guba 1994, p.165); in the present project I argue, that although theory and practice, as well as the institutional and public recognition of dance may define the art form in terms of its unmediated and transient nature, digital technology, new media and the social experience of cyberspace challenge those understandings. In "Against Ontology…", Auslander claimed that we must "understand the relationship [between live and the mediatised] as historic and contingent, not as ontologically given or technologically determined" (1997, p.54).

Epistemological approaches for constructivism are transactional and subjective because knowledge is considered, according to Lincoln and Guba, as "an individual reconstruction coalescing around consensus" (1994, p.170) that leads to informed and sophisticated views on a problem experienced through other people's actions - I therefore engage with writings, artefacts and testimonies in order to evaluate this practice and its contribution to extending conceptualization.

Because my research facilitates dialogue between sources, which induces an original debate and enables generalizations, it entails a dialectical methodological tool; as Lincoln and Guba assert, criteria in this sort of research practice have a function to ensure "trustworthiness and authenticity" of my findings. My values are formative in the research undertaking, conducting the choice of subject, methods and interpretive paradigms, as well as negotiation between concepts and artefacts; but my posture is that of a "passionate participant that facilitates a multivoiced reconstruction" (p.170) and the conclusions are tentative and open.

3.2 Fitting in the community

As Denzin and Lincoln pronounce, the qualitative researcher "enters the research process from inside an interpretive community. This community has its own historical research traditions, which constitute a distinct point of view" (1994 p.18): my research methods were therefore informed and challenged by the affiliation to Dance Studies and the affinities with other communities.

Affiliation with Dance Studies

In the *Dance Studies Reader* Carter (1998) reviews how subjects, methods and perspectives have evolved within the discipline. The early 1940s-1970s period is characteristic of analysis of movement quality[8] and descriptions about performance. Throughout the 1980s Carter points three strands of activity: dancing itself (issues about the performer), making dances (emphasis on choreography), and appreciating dances (engaging with performance judgement).

For Carter the early applications of aesthetics to dance were problematic: philosophy study, she says, has rarely regarded dance as a subject, and scholars tended to uncritically transfer frameworks that paid no attention to disciplinary specificities[9]. Sheets-Johnstone (1980) has otherwise argued for a phenomenological epistemology, departing from embodied experience as constituent of self-hood, which Kozel later pursued to study media and computers (2007). Fraleigh related phenomenology with aesthetics characterizing dance as "movement of the human body with an aesthetic intent and end result" (1987, p.53) and non-verbal in essence (in Fraleigh & Hanstein 1999, p.ix)[10].

Texts drawing on evaluation of artworks were in the 1980s still led by dance criticism and often biased by a western male gaze, a problem of representation that Denzin and Lincoln remarked to concern qualitative research until the 1970s[11], and which was tackled by feminist and postcolonial studies from the 1980s onwards - this 'turn' was soon to emerge in dance research.

Foster's celebrated *Corporealities* (1995) marks the move towards contextualized study, considering the cultural values and social codes represented in

[8] Of which Laban is an outstanding reference with all his work on movement analysis.
[9] In fact from Plato to Descartes the agenda has always been to distrust the body and the senses in favour of a mind centred idea of truth and rationality.
[10] This is a hot issue for dance study, which Fraleigh and Hanstein (1999) address as a methodological problem for dance research to resolve. Fraleigh proposes the combination of philosophy and hermeneutics as methods that on one hand enable considering choreography and the performer as a 'text'.
[11] See Denzin and Lincoln for a revision of historical periods of qualitative research (1994, pp.12–18).

dancing bodies and choreographic structure. Carter signposts the 1990s as a prolific period with more enquiry, more subjects and increasing interdisciplinary dialogue; author-led companies were also processing new ideals and aesthetic forms, which the study of dance followed up. Postmodern paradigms, cultural and gender studies and literary theory have brought energizing influences to the discipline, however, Carter observes that "although dance studies have appropriated epistemological modes of enquiry, the traffic has tended to be one way" (1998, p.11).

Sociologist Helen Thomas relates the weak presence of dance in the study of human behaviour to its essential characteristics:

> These include its very nature as an activity of body rather than mind and the Western dualism which privileges the cognitive over the corporeal; (...) and perhaps, most significantly, the very ephemerality of the dance performance (Thomas 1995, p.1).

Unlike painting, Thomas pointed out, dance does not produce an object because it cannot separate from the performer's body; meaning is ambiguous because it is a non-verbal expression and, unlike a book, it is only accessible in public events, fixed in time and space. This condition was praised for bringing specific experience and knowledge about the world, but an epistemological problem remained concerning the appropriate methodologies for the study of ephemeral events.

O'Shea describes four "routes" developed in two generations of dance studies in the Reader's updated edition (Carter & O'Shea 2010): Anthropology and Ethnography, History and biography, expert viewership and dance analysis, and Philosophy with strands on Aesthetics and Phenomenology. The present study is located within the last two routes, crossing dance analysis with criticism and aesthetics.

Expert viewing and dance analysis, O'Shea remarks, have produced important documents that report particular cases and develop the tasks of describing, classifying and discerning dance characteristics (as Fraleigh indicated above) upon which critical theory and cultural study can develop. O'Shea provides examples of intersections with literary theory (Adshead-Lansdale), semiotic and formalist analysis (Jordan and Thomas), and research with postmodern paradigms (by Foster and Franko among others). Franco and Nordera (2007) have followed this last interpretive strand; joining texts on "politics, gender and identities", which they consider the core subjects for 21st century Dance Studies. This period, the authors say, diverges from earlier formalist approaches dealing with aesthetic questions and definition of the so-called 'language' of dance.

Philosophical enquiry in dance studies, O'Shea indicates, has otherwise "examined what constitutes dance, what comprises understanding in dance, and what the relationship is of dance to feeling" (2010, p.9). Authors have tackled audience reception issues in theatre performance and contributed to grasping the intangible nature of dance, discussing 'medium-specific' conventions, which reflect on production and aesthetic evaluation (see for example Langer 1983; Sparshott 1995; and McFee 1992; 2011). Choreographers in turn, have validated their practice with writings from continental and analytic philosophers[12] to address issues of control, beauty, embodiment, affectivity and the experiential in art.

The account above tends overall to characterize the community and the discourses within which I locate my work[13]. However, I often felt that my approaches, which continue to take Dance as discipline into account, were in a state of tension with that community, particularly from the perspective of postmodern interpretive studies in fashion since the late 1990s. Over time I have been better able to justify this sense of misfit: on the one hand my study regards an underrepresented practice, which engages uncommon territory and technologies; on the other hand my interest in philosophical enquiry to address disciplinary specificity and legitimize with aesthetic evaluation does seem to be outmoded for this community.

Affinities with Cyberculture Studies

Although dance and technology research and Dance Studies are apparently disconnected, scholars with dance training have demonstrated with in-depth enquiry (as Popat 2006; Kozel 2007; Schiphorst 2008; Bench 2009b; and Valverde 2010), that dance's unequivocal link with physical kinaesthetic performance brings insights to debates that interest new media and cyberculture theorists, about embodiment, representation and interactivity. Software and interactive design are practical applications, but we also share philosophical questions such as the body/mind split conundrum, the nature of knowledge inherent to it, and the significance of affectivity to dispute this divide[14].

[12] Such as Nietzche, Merlau Ponty, Lyotard, Foucault, Deleuze and Dewey for example.
[13] I am also considering as part of Dance Studies the work of scholars and practitioners who have been theorizing and doing practice-based or led research on the subjects of dance and the computer and dance and technologies that I have reviewed in Chapter 2; some of which is found in volumes that cover specifically contemporary dance (as Preston-Dunlop & Sanchez-Colberg 2002; and Butterworth & Wildschut 2009).
[14] These in turn associate with different philosophers such as Merleau Ponty, Dewey ans Shusterman for example, or Deleuze, Guatari and Massumi.

Bell defines cybercuture as "a way of thinking about how people and digital technologies interact, how we *live together"* (2006a, p.1 author's emphasis). Cyberculture Studies he adds, address the stories "told about these ways of life", which are also about the "frenetic churning of new technologies" (idem, p.2) and not rarely criticize the spectre of technodeterminism and the anxiety of keeping up with the new[15]; thus, Bell observes, these studies "redress the overblown celebration of technology's promise, and the equally overstated technophobia" (2006b, pp.6–7).

Dance experts who work with new media technology contribute to deconstruct technophobia, question technodeterminism and make differences evident: what is revolutionary for visual media arts may not be for body-based arts and vice versa. While the multisensory and systemic event artwork may seem to be avant-garde for visual artists, these qualities are elementary for performance artists; but reproduction and the remote or asynchronous public exchange that is genealogical for mediated arts, is nonetheless groundbreaking for unmediated dance. Bell claims that Cyberculture Studies are necessarily a transdisciplinary field, open to developing perspectives from any discipline:

> It is work carried out in a diversity of intellectual and institutional locations, often embedded within more 'traditional' subjects and departments. This gives cyberculture studies an heterodox richness and anti-canonical stance: it is both theoretically and methodologically promiscuous (Bell 2006a, p.4).

This research undertaking is closer to the studies "on the creative and applied arts intersecting with new technologies, and studies of the aesthetics of new technologies" (p.5)[16]. New Media Studies are according to Bell a subset of Cyberculture Studies, which focus more on the actual technology and less in the cultural enquiry. Gere highlights that the experimentalism known to push scientific research forwards "is to be found in so-called new media art" (introduction in Gardiner & Gere 2010, p.4).

As mentioned above, Carter's work in Dance Studies underlines the value to the field of a disciplinary commitment and Dixon and Kozel's writings encourage my endeavour with new media. Ann Balsamo warns us that discussing cyberculture within social sciences, the humanities and the arts is critical: "don't leave science and technology to technocrats and don't leave the education of technocrats to academics in science and technology" (Balsamo in Bell 2006a, p.7).

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[15] In technodeterminism perspectives the relation between machines and human beings is seen as one-way; humans are considered passive and controled by technological development, subject to discourses driven by computer scientists and hegemonic structures of power (Bell 2006b, pp.6–7)

[16] Bell lists this topic among a generous list of subjects and related disciplines.

An aesthetic turn in dance and technology investigations

Aiming to moderate perceived institutional marginalization and anxieties with dissolution I have proposed a strategic enquiry on the aesthetic quality of artistic practices that instantiate dance performance in cyberspace. The artworks are pragmatic evidence of my speculative description, but if they are 'good' their 'truthfulness' increases significance. Validating research results with aesthetic judgement sounds difficult[17], but driving dance analysis with this aim proves to fit methodologically because of the required in-depth examination and justified reasoning.

Carroll (2008) relates philosophical aesthetics with criticism to avow that critics must assume evaluations, supported with explicit reasons, which he finds to be neglected in this community. Carroll understands that critics avoid objectifying because artworks are increasingly interdisciplinary and reflect a variety of interests and aims. Evaluation is nevertheless achievable with appropriate methods, he claims: "a critical analysis of an artwork is an account of how the work works – of how the parts of the work function together to realize the point or purposes of the work" (2008 p.111)".

I identify my research activity here with Carroll's argument[18], finding such an emphasis on reasoning connected with validity concerns in qualitative research, and observing the functioning of work I would add, reveals how discipline–specific intuition engages with technological outsets to create signature-marked practices (Melrose 2012).

In Heidegger's mid-20thC article, "The question concerning technology" the writer directed the reader's attention to the correlation between material, craft and purpose, and the 'completed' artwork that we experience: "Everything depends on our manipulating technology in the proper manner as a means" (Heidegger 1977, p.5). Since I take it as given that computers and new media trigger the transfer and transformation of materials, craft, work and experience, we must examine technology to perceive what is the work, and what makes it work; as Heidegger claimed: "The essence of technology is in a lofty sense ambiguous, the mystery of all revealing, i.e., of truth" (p.33). This process augments the expert spectator's skills at understanding and evaluating the work.

[17]Not surprisingly this method is unusual within contemporary research communities, because the search for validity implicit in aesthetic judgement is counter current to arguments on subjectivity – fairly supportive for discourses on embodied knowledge - and hybridity – fairly popular in discourses about performing arts and computer technologies.

[18] Carroll has contributed to dance studies with some of his writing, namely regarding dance aesthetics (Carroll 1999) and dance films (Carroll 2001), which provides authority to his discourse on criticism in relation to dance. In this later book he addresses various different arts, from cinema to dance to pictures to photography, including comedy and literature, providing clues on how different medium-specific values should be considered or, in other times, demonstrating common aspects between different arts.

Choreographers such as Forsythe and Keersmaeker have already demonstrated that technological mastery is also a part of unmediated dance performance[19]; and when Heidegger wrote this text (1954), the new media that I am addressing did not exist. My commitment is nonetheless attuned with his point that "the will to mastery becomes all the more urgent the more technology threatens to slip from human control" (p.33); thus Popper has also revealed correlations between the artists' mastery of new technologies and their philosophical undertaking. The artworks' value however, does not confine to technological mastery, as Popper underlines: "Given the context of current history, this human commitment takes on a special significance. But it also has to be linked to the various other aesthetic commitments of these artists in order to establish their full import" (2007, pp.396–397).

Debating aesthetic values means investigating both detail and difference with artworks, and the critic's responsibility is upgraded, I would argue, to that of a qualitative researcher. Without this kind of enquiry it is difficult to determine whether discourse "about the new" is pure rhetoric or whether if changes discussed are indeed radical. We cannot understand the implications of recording and reproduction for the works and for our experience of them. Furthermore, we cannot discern which values need to be reviewed (or updated) in judgements that were once based on the evanescence and embodiment of live performance: are stamina and virtuosity, characteristic when dance is a vital art-form, still important when we create camera and montage choreography? Are the values of authenticity and unrepeatability, praised in existentialist and expressionist stage works[20], pertinent for electronically mediated dances?

The anxiety about the ephemeral dance event (for a spectator, if not for the performer) is overcome when we can return again and again to a case in question. However, the issue of distance and loss (of the artefacts), bound in as they are by writers like Phelan (1993) to desire, is paramount for Dance Studies. By contrast, in the present research undertaking, until they become "technologically obsolete" (Wilson 2002)[21], I can connect with two of my objects of analysis at any moment, and I have access to the

[19] Forsythe's use of digital technology, with examples I provided in Chapter 2, has precisely and efficaciously demonstrated that; but Keersmaeker has also published three volumes about her dance making process in the collection "A Choreographer's Score" - http://www.rosas.be/en/book_production [Accessed 12 January 2015].

[20] I am thinking for example on works by Pina Bausch or Japanese Butho dance.

[21] Igloo's CD ROM (1998) for example cannot run anymore in updated operating systems; although technically not ephemeral, the work can only be seen as a recording of the playing of the new media artwork; either facilitated by the artists or made by the researcher.

device or the network[22] from anywhere at all. However, for the purposes of detailed analysis I still needed to record their 'performance' for later reference (and in order to observe without being immersed); but Interactive new media artworks depend on external physical action to instantiate, which poses the question: where do we draw the line between what the work "is", before actualization, during and post-actualization? This distinction challenges Carroll's disregard of evaluation grounded on "reader-response aesthetics" that drives reception theories (p.150)[23] but has no clear implications for artmaking. Interactivity makes audience experience constitutive of the artwork, but how do we analyze and evaluate this? It is to the end of responding to this issue that I have adopted the notion of identifying performative triggers[24] in the work as a research tool.

Since Kant wrote the *Critique of Judgement* (1790)[25], drawing on the notion of a supposedly universal theory of beauty, aesthetic values have been repeatedly debated and reviewed - as well as the subject of their enquiry: that is, art. In the last half of the 20th century, much of this work questioned Kant's argument of the existence of a manifestation of pure and uninterested taste, drawing on the many factors that influence experience, perception and judgement. In the 1950s Dewey (1958) examined the *quality* of experience, pointing out that variations of individual interaction with the work must be considered; however, from his perspective such quality remains a concrete value of the artworks. The sociologist and cultural theorist Bourdieu (1984) has argued that taste is class-determined and learned, not universal, and therefore perception of the work is bound in to the personal (and politically-marked) interpretation of the subject – hence the readings of expert-viewers are necessarily different from those of casual or sometimes even expert spectators. Deleuze with Guattari (1987) described affect as an

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[22] This possibility however, brought up other problems regarding locating the works temporally and geographically, as I have discussed in Chapter 1.

[23] Carroll is criticizing the emphasis of the reader writer and the notion of creator given to the audience member, which eventually, he finds, will lead to falling in an anti-productive pond of subjective arguments, which have been driving criticism away from its main reason: evaluation; we know nonetheless that this might be a reductive perspective, when informed by other claims generated within other research work in dance studies as Adshead-Lansdale-Lansdale has done.

[24] The term originates in the work of philosopher J.L Austin (1975 [1962]), where he argues that language use needs to be analysed in terms of "speech acts" that perform things in social terms, rather than more simply communicating a pre-determined message. Performing something, through the use of words, is a relational act (bringing together a speaker and a listener) and a social act. Melrose, in http://www.sfmelrose.org.uk/ [accessed February 2015], adapts Austin's concept to the dance set-up, where we are dealing with the notion of "how to do things with movement" or "with dance". As well as the dance set-up, for this to occur we need a particular relationship between makers and spectators and according to her we seem to accept that kinaesthetic options are able to "do things" to and for spectators, instead of merely "communicating a message". Choreographic decisions taken "do things" to a spectator, or cause a spectator to do things, as Melrose explains.

[25] Consulted in a recent published edition (Kant 2008).

embodied practice of judgement, which asserts 'rightness' and 'truthfulness' to the image-based work; despite knowing that images are constructed representations, viewers may bond affectively with them. Bourriaud (2002) theorized contemporary art with the term "relational aesthetics" stressing value in the encounters with the audience and their historical and political context, for the identity of the work.

The major research methods utilized in what follows are case study research design and inductive reasoning; therefore the enquiry that follows does not have the pre-determined and overarching framework from a deductive approach to aesthetic theory. The discussions cited above were mainly instructive in terms of my own understanding of how the discourses focused on aesthetics can illuminate debates about audience reception, which are inextricable in – indeed constitutive to - the artworks that I am studying.

For the editors of *Rediscovering Aesthetics* (Halsall et al. 2009), the orientation of research in the arts with aesthetic enquiry is still a dynamic activity that produces valuable discourses and debates. Contemporary aesthetics, they argue, reviews the artworks together with the political context from which they emerge, negotiating between issues of subjectivity and validity: "aesthetic judgements show how we expect discourse to function, in general – not in a neutral absolute way but as interlocutory, argumentative, and open to debate" (p.8). My argument here is that aesthetic evaluation underlies dance performance in cyberspace, and the focus of this research project remains constructivist and theoretical.

3.3 Case study research design

I have identified examination of artworks with case study research design as an adequate epistemological choice to attend the coherent and original results this thesis targets. As Stake emphasizes the researcher "draws attention to the question of what specially can be learned from a single case" (Stake 1994, p.435), it is a study of the particular, which will "assist readers in the construction of knowledge (p.442)[26]. Overall, my argument will be that each case study also presents and argues for a mode of research enquiry and its strategies.

[26] When I proposed this research to the University I expected to engage a wider range of artworks and groups, on a more superficial level, as examples to inform an overall theoretical characterization of dance performance in cyberspace. But the results of my survey, indicated in Chapter 1, suggested that in-depth focus in particulars could bring up better results in terms of validity and coherence.

Instrumental and intrinsic interest in the cases

While the theoretical writing reviewed should allow detailed reflection on instances of art-making, the practices in turn should provide a reality check to the development of theoretical issues. I propose to address practice as evidence and anticipate that both the projects and the artists' statements will contribute to illuminate concepts and conundrums, either agreeing or disagreeing with theoretical arguments, namely regarding the issues of disembodiment, liveness and agency.

In a typical example, Norbert Corsino rejected talking about his 'virtual dancers' as dematerialized and although the term 'live art' no longer suits his practice, thinking of it as a 'dead art' is also absurd; Didier Mulleras remarked that even though he is not co-present, he still 'feels' that he performed to someone, somewhere, when the system tracks that a user was playing with his web-dances; and the dance encounter in cyberspace enabled in Joseph Hyde's piece will demonstrate how the concepts of performer and performance remain essential to defend the distinctiveness of this artwork[27].

I have signalled that I will proceed using an inductive method in this study, but in my experience using practice as evidence in fact energizes deductive reasoning. In Stake's terms this also reveals "instrumental interest" in cases:

> I call it *instrumental case study* if a particular case is examined mainly to provide insight into an issue or to redraw a generalization. The case is of secondary interest, it plays a supportive role, and it facilitates our understanding of something else. The case is still looked at in depth, its contexts scrutinized, its ordinary activities detailed, but all because this helps the researcher to pursue the external interest (Stake 1994, p.437).

In effect I have set this study in motion by asking research questions that overarch the eventual examination of cases: on the course of migration to cyberspace what transfers and what transforms ('dance')? What are the impacts for conceptualization of dance? My starting-point with regard to research methods is that innovation (in cyberdance) need not equal dissolution (of dance itself) because some characteristics and values are likely to remain indispensable to our engagement with new media dance forms.

However, I also have "intrinsic interest" in the case-studies and methods used "to describe the cases in sufficient descriptive narrative so that readers can vicariously experience these happenings and draw conclusions" (Stake, p. 439). Inductive reasoning

[27] This is material from the interviews and my own observation of the artworks, which are reported in Chapters 5,6 and 7, as well as in the Appendixes 1, 2 and 3.

from immersion in these practices, as particulars, is likely to be rewarding, in that any interpretive conclusions that emerge will have been drawn from specific realities.

Case selection and materials

> How can we grasp the nature of the subjective gesture a researcher makes in choosing the source? How can we recognize the potential for any document, subject, event, or individual to become a source? (Franco & Nordera 2007, p.2)

My response to the questions above explains the choice of three works (fig. 3:1) from different groups, as cases to study, which are: the web-based dance *96 details* by Cie. Mulleras (2007-2009); n+n corsino's dance artwork for the I-phone *Soi Moi* (2009); and *Me and My Shadow* (2012), the telematic installation from Joseph Hyde.

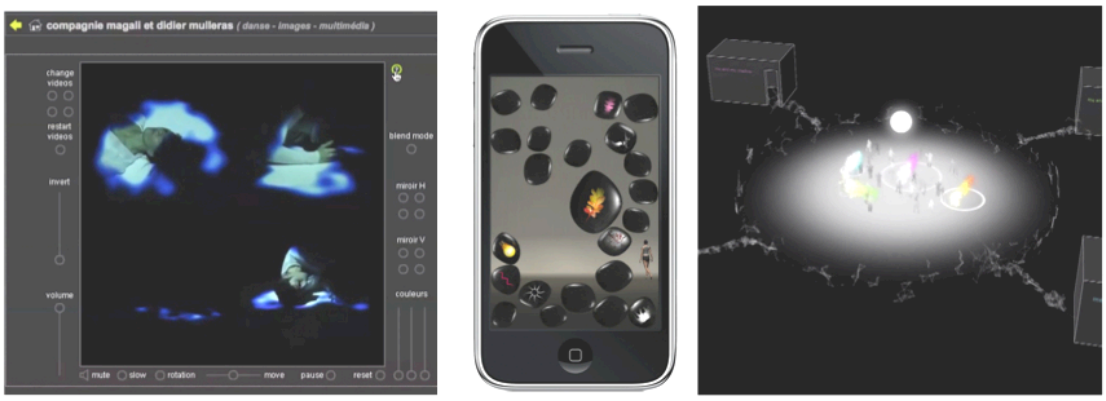

Figure 3:1 – case-studies: *96 details, Soi Moi, Me and My Shadow*[28]

Each of these artworks fits perfectly inside the zone created by my hexagonal criteria frame[29]; secondly they are quite different from each other and have a value associated with uniqueness – in research terms each is singular; but each can equally represent other cases, which I might have missed or that are yet to be created[30]. The diversity of form is important in demonstrating the variety of existing models and conceptual malleability.

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[28] Screenshots from the artists' websites www.mulleras.com, www.nncorsino.com, and https://madeshadow.wordpress.com/.

[29] Throughout the thesis I discuss the conceptual and practical implications of these criteria: cyberspace, interactivity, new media (Chapter 2), professional (Chapter 1 and 3), dance, art and performance (Chapter 4). All concepts are reviewed with the illustration of cases in dedicated chapters (5,6,7).

[30] My speculative title "dance performance in cyberspace" (as stated in Chapter 1) reflects the need for a study that can suit the unknown and the potential. Although this might sound as an utopia, I chose research methods and a research design that enable me to provide results, which can be validated in relation to existing and local realities, but my analysis method can be used or discussed for other cases. This speculative nature of my study was the only way to respond to a very pragmatic issue: any thing we say today may simply be obsolete tomorrow when digital technology is involved because the pace of technological development is faster than artistic and conceptual development. See for example McChesney's article about the fast changing rate of the World Wide Web (in Herman & Swiss 2000).

As Stake asserts, case selection is justified in qualitative analysis because "the cases are of prominent interest before formal study begins" (1994, p.446); a central condition here was the association with experienced and skilled practitioners. The Corsinos, the Mulleras and Hyde[31] have created referential work for the past fifteen years; following the theoretical writing of both Cetina and Melrose, which I am citing bellow, I am arguing that each is a complex "epistemic object" (or 'knowledge-object') whose practices constitute an exploration in contemporary knowledge itself.

For Cetina epistemic practices or knowledge activities can constitute, in a research enquiry, epistemic objects themselves; they differ from our everyday conception of objects because the latter are like "tools or goods that are ready to hand or to be treated further" and have "the character of closed boxes", while as a defining characteristics "objects of knowledge appear to have the capacity to unfold indefinitely" (Knorr-Cetina 2001, p.181).

Melrose applies this enquiry into research to performance arts practices (2007; 2009; and 2012). Performance-mastery, performance-making expertise, disciplinary specificity and professional production values, Melrose discerns, characterize the work of expert-practitioners, and intuitively drive the latter's working processes. These, in turn, originate works that are likely to have empirical fit[32] (rather than justified on the basis of rational argument) with aspects of the expertise of the researcher. This for Melrose is specialized and multi-skilled knowledge:

> It takes a highly particular energy and forceful persuasion, a keen and practical grasp of production logics and production values, a contract or series of contracts, and professional respect between the artists concerned for expertise to reveal itself (2009, p.31).

Melrose identifies particular epistemic objects that are involved in arts practice as research: *"expert-intuitive processing* in creative decision-making that is expert in kind", "*signature practices"* (which are inextricable from the artist's name), *singularity* (within the practitioner's body of work) *sensibility* (of the expert practitioner), and "*qualitative transformation"*[33] (2012, p.304 author's emphasis).

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[31] In Hyde's work, the association with the collective Body>Data>Space directed by Ghislaine Boddington is important for fitting within the hexagonal frame, I explain this in detail in the introduction to Chapter 7, which is when I analyse this case.

[32] This empirical fit drives the working process for many contemporary dance choreographers, they are searching often in the unknown while they are making, and pursue intuitive thinking that leads them to what is right. This often is at the cause of us spectators sensing that righteousness as well.

[33] Melrose attributes identification of this fifth 'objectual' practice to Massumi (2002, p.165).

While Cetina regarded the results of scientific research[34] and Melrose addressed expert making-processes, I apply the term "epistemic objects" directly to the artworks themselves that figure in what follows as case-studies; although literally objectified they configure the knowledge objects that Cetina describes: they emerge from extraordinary specific problems, which resolve in creative and constructive practice; they are "transient, internally complex", and "signifying entities" (2001, p.183) and observation, as she remarked, increases their complexity and requires understanding expert-object relationships. These objects are the result of long-term practices, which for Melrose refine the knowledge and intuitive processing of experts; they are therefore distinct from other discipline-unbound, casual or amateur practices that inhabit cyberspace. This difference has impact in the performative efficacy of these works and their techno-aesthetic consistency.

To study the artworks I propose to employ a number of empirical materials: 1) informal interviews with the artists in their settings; 2) information about the pieces and their authors retrieved from websites and catalogues; 3) related articles from other writers in various types of publications; and 4) the artworks themselves. I documented my examination of the works according to my own set of parameters and returned frequently to other sources (most of which I have identified in Chapter 2), to extend contextualization and interpretation. This model of analysis is explained further bellow.

The processes of documentation and analysis I propose to employ will conform to guidelines for the case study recommended by Stake. Although drawing on in-exhaustible particulars[35], I propose to reduce misinterpretation and validate my observations and generalizations (1994, p.443): I propose to exercise triangulation by articulating different materials and voices; I am likely to make comparisons in order to contextualize the works among other practices and highlight different ways of dealing with common challenges.

The written and visual registers I propose aim at achieving a balance between reporting and story. The development of this section concerned with research methods has already been informed by the choices of the case-studies, by my own writing experience, and the theoretical framework described above; I have also undertaken

[34] For Cetina research results such as a new text or formula are also epistemic objects.
[35] Because they are artistic and dance practices, interactive and unbound to habitual geographical and on-site physical borders their complexity increases and dance analysis has emphasized the contingency of interpreting dance artworks. I address these issues further on in the next section and in the next chapter.

hands-on workshops on basic functioning of the technologies involved, which helps understanding technical aspects and writing about them[36].

3.4 Tools for a model of analysis

In order to decide on a coherent approach suitable to the analysis of new media dance artworks in general, considering common characteristics and variations in form and materials, I have surveyed the literature that discusses or formulates analysis in dance performance and new media art[37]. This review provided an opportunity to extend my knowledge about available and tested mechanisms regarding dance practice[38] and to confront different methods, or become familiar with other approaches coming from scholars interested in new media art and human computer interaction (HCI).

Reading across the literature has revealed that art-disciplinary perspectives can lead to quite different readings of the same work; not only do the visual and performing arts have medium-specific practices, but interpretations are informed by the conventions from different communities. In addition, the dance artworks analyzed in this literature are generally singular despite using common materials (such as performer, movement language and the theatre for example). Such singularities often indicate that some frameworks - and some writer-researchers – are more adequate than others, and that different theoretical frameworks also provide or constitute different models[39].

As I have discussed above, many scholars have generally moved away from aesthetic appreciation and frame arts practice through recourse to critical and cultural research paradigms. Hence analysis of the sort I am proposing – i.e. that is modelled by

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[36] The workshops were: 1) Optical Vicon Motion Capture, June 2010 in Universidade Lusófona, in Lisbon; 2) Isadora software, April 2011, in Escola Superior de Dança, in Lisbon; and 3) Kinect motion capture, August 2013, Middlesex University. This was not a systematic procedure with equal measure and in regard to all the cases, but rather singular and brief experiences; therefore I am not reporting these workshops in an Appendix. They were nonetheless very useful to inform my understanding of technological jargon, software and hardware limitations or possibilities, which served me as a background in the examination, description and evaluation of the works. The Motion Capture workshop in June 2010, for example, was quite valuable to delineate the interview to Norbert Corsino in July 2010.

[37] In the previous chapter and in Chapter 1 some references have already been engaged with. They are recalled now in relation to their specific contribution to support observation and experience, in order to describe, interpret and evaluate the artworks.

[38] There is an extensive literature regarding the making of dances and the design of interactive human computer interfaces but there is little literature that combines the two. Mostly this is a field of practice-research, where the makers find the theoretical framework to talk about their own work or, otherwise, the analysis has a wider frame and objective.

[39] This is noticeable for example in the way artworks are reviewed in the literature presented in chapter one; Bench has prioritized applying a different conceptual tool (the idea of no-place for example) or a philosophical framework (Nietzche's formulation of "eternal return") in each chapter of her thesis, which regards different body configurations in dance-media (Bench 2009a).

transversal parameters and questions, and that conforms to both the qualitative and technological definitions of the artworks - is not yet clearly undertaken. On her reasoning for methods that convey the singularity of the work and bridge the reader's interest particular perspectives, Lansdale (formerly Adshead-Lansdale) recalls using "theory" as a toolbox of analytical methods (Lansdale 2010, p.166), rather than a single and all-encompassing means of explanation. I will review the key points of some of the theoretical writings that have proved to be useful tools for my own research purposes.

The dance writers Thomas, Adshead-Lansdale, Preston-Dunlop and Sanchez-Colberg, support my examination of elements and their combination, and each subscribes to a consideration of cultural context in order to comprehend the identity of a given dance practice and the texts produced by writers concerned with dance performance. Popper, writing on virtual art, is resourceful in the organization of different displays, framed by critical issues in the context of cyberculture, which artists have interpreted; Schiphort's work, with Shusterman's concept of somaesthetics, provides a framework bridging analysis from the perspective of audience experience and HCI design.

Combining extrinsic and intrinsic approaches

In *Dance, Modernity and Culture…* (1995) Thomas aimed to demonstrate that dance is a reflexive practice, which expresses how people, as individuals or groups, are organized in a society informed by cultural, geographical and historical context. Thomas initiated a study about American modern dance with an extrinsic approach: she examined historical developments, political views, and theoretical frameworks, which organize knowledge and production at a certain time[40], and considered the conventions that have acted upon to determine dance traditions. Such examination was then combined with an intrinsic approach to the artworks, which she explains, "considers the qualities that are specific to dance form itself, and this addresses the aesthetic components" (p.23); it is with this sort of strategy, her approach suggests, that the different meanings and styles a dance can embody may be disclosed.

Combining extrinsic and intrinsic perspectives is not straightforward and the two may indeed "stand in tense relation to each other" (p.28). Their articulation provides nonetheless one way to understand cause-and-effect relationships between context and characteristics of the dance. Thomas reflects on this issue, observing that "the study

[40] For example the different readings that come out of a modern constructivist approach and a postmodern deconstructivist approach.

proceeded by asking 'why' questions on the one hand and 'how' questions on the other" (p.164). Although her analysis was framed by a sociological enquiry, to discern intrinsic qualities in Martha Graham's work, Thomas combined a phenomenological approach, which stresses that lived experience through the body, either of the performer or choreographer or of the spectator, is the first source of knowledge and aesthetic appreciation about a dance[41].

This method feeds back into my process of analysis in two ways: one is the need to take into account my interactive experience with the pieces as a resource to understand their working; the other is the importance of considering electronic networks and virtual environments as contextual references of cyberculture, since the artworks will be reflexive of issues that matter to that historical as well as technological context.

From discerning components to intertextual reading

Janet Adshead-Lansdale consolidates dance analysis as a discipline-informed method to distinguish and address dance practices that can reflect human behaviour and cultural identity[42]. In *Dance Analysis: Theory and Practice* (Adshead-Lansdale 1988) Adshead-Lansdale devised a structuralist approach informed by literary theories used to analyse language and the semiotics of performance[43], where interpretation – of dance - is a result of close examination of the parts. Within this model a specialist viewer must have the ability to isolate components and discern differences between the movement vocabularies in use, the relevance of who participates, and the influence of visual and aural elements. A second analytical phase would observe the structure and relationship of components[44], which denote affiliation with a particular style within the discipline. In the process of discerning and describing components, their relationship and their patterns, the viewer would arguably be in a position to draw conclusions about the dance and its context.

The activities of description and identification as described in this volume inform interpretative analysis, which is discussed by Hodges. Interpretation leads to recognizing the character, qualities, meanings and significance of a particular work, as

[41] Thomas is basing her approach on the adaptation of Husserl's theory (a first pre-reflective philosophy) and Langer's conception (of dance as a symbolic form) as they were developed in *The Phenomenology of Dance* (Sheets-Johnstone 1980).

[42] In chapter 2 when setting the enquiry and discipline framework for this study I have discussed Adhsead's emphasis on this method as a response to the growth of dance as an object of study for various disciplines.

[43] Such as Saussure with Semiotics and De Marinis.

[44] I have specified some of these components in Chapter 3 and they will be again explained when I engage with descriptive analysis in the coming chapters about the case-studies.

well as the style or genre, associating them with geographical and historical references. Since – it is argued - dances manifest given values, Hodges sees in interpretation an essential process to identify what she calls the "worth" of an example to a broader debate on cultural and political issues.

As evaluation the author refers to "the skills of appraising and judging the merit or worth of the dance" (Hodges in Adshead-Lansdale 1988, p.90) and this may be viewed as a targeted outcome of dance analysis, particularly when the works are aimed primarily at public appreciation. Merit, Hodges argues, can be assessed by success or failure of the dance to 'achieve its purpose', by the experience of the individual spectator, and by choreographic and performance values embedded in genre and style: the structure of the components, the subject matter and the quality of the performance in the moment of presentation. As such, dance analysis emerged as a pioneering method to extend readings from anthropological and aesthetic studies in dance; the examiner could now improve Laban's descriptive and fundamentally technical movement analysis, as well the personal, often biased and non-validated opinion, of the dance critic.

With *Dancing Texts: Intertextuality in Interpretation* Adshead-Lansdale (1999) reviewed her model of a linguistically-derived identification of components, assimilating ideas from poststructuralist theory in literature and philosophy[45]. Adshead-Lansdale reinforced the ambiguous and irreducible nature of "the performance text" (De Marinis 1993)[46] and her attention shifted towards the reader's subjective but nonetheless constructive activity; crossing with Barthes' notion of the readerly/writterly text (1976) she embraced intertextuality as a reading model that considers interpretation as a creative act (Adshead-Lansdale 1999). The notion of dynamic interplay between artwork and visitor, which her work highlighted in relation to theatre performance, remains useful to address in dance performance in cyberspace. Because audience involvement is required for the artwork to become actual, the singular map of meanings resulting from this exchange is 'materialized' as though 'in' the work itself, and each visitor's engagement depends on background, previous knowledge and experience.

In *Decentring Dancing Texts: The Challenge of Interpreting Dances* (Adshead-Lansdale 2008) the author advises that any narrative traced from a single performance or artwork is contingent upon local particularities; with reference to the current project, readings tangle with effective action, since the spectators can now participate in variable

[45] Namely Kristeva's idea that poetic language is an infinite mosaic of quotations (Kristeva 1984) and Foucault's claim that any text emerges from and resonates in a complex cultural network (Foucault, 1969)
[46] De Marinis defines the performance text as the combination between the textual element and other components, which triggers meaning and employs communication strategies (De Marinis 1993).

ways. Inter-textual interpretations follow a paradigmatic evolution in qualitative research; they require clarification of the perspectives that drive the examination of the artworks (i.e. the human activity that is being observed) and consideration that the same artwork might trigger or target a different reading and become significant to other critical perspectives[47]. Hence Adshead-Lansdale remarks, the researcher must be critical about her own judgements and assertions; only then her interpretative narrative is valuable to claim that a dance work (or a dance genre) plays a valid role in society and as a consequence is relevant in contemporary Cultural Studies.

Although agreeing with Adshead-Lansdale's inter-textual approach, I also find the structuralist model quite relevant, which supports her argument that analysis is equally concerned with "the internal workings of dances, since otherwise it would not be dance analysis, but analysis of something else" (2008, p.6). For my own project intertextuality is a useful reading tool to relate these works with debates about cyberculture; however, particularly because these practices are new, heterogeneous and under theorized, interpretation does first require the inspection of content on the basis of components and their combinations. Therefore, as Lansdale remarks, this analysis "requires attention to the detail of the dance: its movements, the spatial orientation and dynamic inflection of each movement, its presentation within a visual and often musical environment, as well as its subject matters and treatments" (Lansdale 2010, pp.162-163, formerly Adshead-Lansdale).

Choreological study of the dance medium

Preston Dunlop and Sanchez Colberg address analysis from a choreological perspective, which they consider appropriate to the scholarly study of dance (2002). This method extends Laban's movement analysis to focus on theatrical performance and investigate the nature of dance as an artistic practice, organized by theatrical codes, which can be engaged in many different contexts, from the theatre to cyberspace. The authors remark that "The increasing use of technology in the dance domain has been touched upon only" (2002, p.114) - this is an inclusive novelty in relation to the studies of Adshead-Lansdale and Thomas; it acknowledges the need to extend existing frameworks since "much of performative dance will before long be technology compatible" (p.114).

The choreological study operates within four major principles: 1) that dance is an embodied practice that expresses identity of the self and the experience of reality

[47] For example, applying a feminist framework to Ballet can provide a different reading from earlier interpretations in the history of dance (see Carter 2008 and Foster 1995).

lived through the bodies at the moment of performance (which the authors name corporeality); 2) that choreographers, performers and audience are always interrelated in the making of the artwork and influence the identity of the piece in a variety of ways (in the theatre and in interactive installations for example); 3) that idea, medium and treatment are interdependent and constitutive of the work, mutually influential, and reveal whether the dance is perpetuating or breaking existing codes; 4) that process and product are both part of the identity of a dance and the product may actually be the process becoming an event (as contact improvisation or works with interactive participation of visitors).

For the authors the above principles rule the dance medium, which in turn, articulates four strands: performer, movement, sound and space[48]; a dance depends on the way they relate to each other (their nexus) to take a particular form and meaning. To some extent this position is close to Adshead-Lansdale's elements-based early method; however, Preston-Dunlop and Sanchez-Colberg privilege the term 'strand' to emphasize the fluid nature of dance artworks and their understanding of the art form as a system, which relies in the interelationship of multiple and different parts.

This view is important to account for in my own research undertaking because it acknowledges the need to expand the study of dance to practices that may contradict, when instantiated as new media, central principles such as embodiment and corporeality: "With the advent of technology-based works traditional concepts of mise-en-scéne will have to be re-thought, a situation for which the 'strands' theory is in place and ready to accommodate" (2002, p.113), they write. In Chapter 4 I will address some disruptions introduced with new media; synthetic animation movement can become humanized through anthropomorphic representation for example, and real human movement can be the source data of choreography in graphic representation.

Preston-Dunlop analyses the moment of reception as the transaction between artworks and their audiences, which generates interpretation and evaluation (2002, p.268). Because passing a message might not be the primary goal of the performance, Preston-Dunlop prefers this term – transaction - which focuses on the relation between content and audience. The significance of the artwork has to be measured in terms of the reader's engagement (esthesis) with the artists' intention and process (poiesis),

[48] A central driving element is the embodied person, since who is there is not an empty body but a self that projects or creates and identity in the act of performing. This emphasis supports my vindication (in Chapter 4) that the human body (through the performer's image) is fundamental for the nature of dance and its consideration as a human cultural activity.

which in turn may have different communicative functions[49]. In the transactional event of a dance artwork Preston-Dunlop argues, the importance of meaningful communication is counterweighed by the importance of embodied experience: "we have to remember that dance is not about understanding, primarily but about engaging with the work phenomenally and searching for meaning, maybe" (2002, p.271).

There are similarities and oppositions between Adhsead's dance analysis and Dunlop & Colberg's choreological perspective. Both methods advise concentration on what dance is in order to see what it might be, and they here resonate with Thomas' intrinsic approach. But while Adshead-Lansdale's considerations on reception are directed towards the meaning of the work, Dunlop & Colberg's assertions focus on experience as a capitalizing aesthetic value, which is forefront in the transaction between audience and the dance artwork. Similar emphasis is given to the aesthetic value of audience participation in interactive practices (Birringer 2008) and the reciprocity of "aesthetic propositions" when participation influences the resulting artwork (Popper, 2007, p.220)[50]. The quality of the experience, Preston-Dunlop argues, may then be measured in terms of affectivity and eschew the importance of background information and understanding in order to engage deeply with the artworks.

The experience of an artwork is difficult to assert in more than speculative terms. To do so both Thomas and Dunlop have related phenomenological epistemology, grounding assertions in their own experience. Aesthetic appreciation might focus in the artwork's form, theme, and context, but our experience of those works is necessarily involved[51]; in dances that instantiate in cyberspace, this calls for examination of the interactive design that conducts the transaction. Thus I also tested the efficacy of the artworks on the basis of my own experience.

Techno-aesthetic commitment

Frank Popper has focused research on the 20th century history of art that is made with electronic media (see for example Popper 1968 & 1993). His book *From Technological to Virtual Art* (2007) provides a comprehensive account of the works from artists whose institutional references, education and antecedents come from the tradition of the fine arts. Virtual art is a technically informed designation, Popper states, because it refers to

[49] Dunlop refers the functions defined in communication theory: innovation, aesthetic, injuctive, performative, referential and metalinguistic; she explains and applies these functions in relation to postmodern dance artworks (in Chapter 13, p.259-282 Preston-Dunlop & Sanchez-Colberg 2002) .
[50] See the Interactivity discussion in Chapter 2.
[51] Thus for Kant aesthetic judgement results from the subjective experience of an object, the sense of pleasure (or displeasure) and the engagement of the senses (Kant 2008)

art made with media that are only available from the 1980s onwards, depending directly on the development of digital technologies and Internet communication. Although Popper does not address dance artworks, much of his reasoning is applicable to dance performance in cyberspace.

Popper highlights the techniques involved in the production of virtual art - hence addressing the work's materials and methods; he explains how the artists consider interactivity as a feature that integrates participation and facilitates immersion in the work; and discloses how contemporary issues emerging in the era of electronic reproduction, information and communication, are interpreted with these artworks. When making virtual art, Popper argues, the artists pursue a double logic, which is "based on the combination of current technical and aesthetic issues" (2007, p.2).

The explorations that appear within this particular context foreground the aesthetic advances in virtual art, which express various ways of intervening in cyberculture: 1) practitioners invade the concrete hardware and the functional and numerical order of computer applications with the subjective human experience, balancing form and code with intimacy and presence in the relationship with machines; 2) when techniques generated by industrial, scientific and military interests are involved in artistic projects, political satire takes place and critically readdresses issues like surveillance, censorship, and marketing; 3) artists embed these technologies with values of freedom and community, namely by exploring self-representation and the notion of public art on the internet, developing open source software and creating platforms for professional networking and audience participation in collective authorship proposals.

While the artists engage in multiple ways with the technologies and introduce innovations in aesthetic research Popper argues that they maintain their ethical commitment to operate "in the interests of humankind" (p.3). These are the basis of techno-aesthetics, a concept Popper formulates to analyse and facilitate the understanding and appreciation of virtual art.

In his review of referential practice Popper discusses a large spectrum of work under four different 'layouts'; they correspond to main hardware configurations and the ways of becoming public and accessible: as materialised digital-based work; multimedia off-line works; interactive digital installations and as multimedia on-line works. I will introduce his definition of these layouts in the chapters dedicated to case specific analysis since those artworks correspond to three of these configurations: *96 Details* (Cie. Mulleras) is an on-line dance, *Soi Moi* (n+n corsino) is an off-line application, and *Me and My Shadow* (Joseph Hyde) is an installation.

Popper makes a signifcant contribution to my analytical model because he traces correspondences between the content and form of the work with the technological aspects that determine processes of making and sharing, and the conceptual concerns that inspired the artists to pursue such specific explorations. The concept of techno-aesthetics reinforces, in addition to the components-based approach, the need to consider what is technologically determined and how. Furthermore, Popper has related the artists' research with philosophical enquiries and asserts that in specific and practical ways – informed by social and cultural identity - they pursue a commitment of humanizing technologies. We can therefore see to what extent and how the case studies of this research follow such a missions or do not, considering their specifcity as being processed with core elements such as the human body and movement.

Somaesthetics and embodied interaction

In *Performing live: aesthetic alternatives for the ends of art* (2000) Richard Shusterman has developed with the term Somaesthetics a philosophical framework that highlights the importance of body consciousness in the perception of the self, the other and the world. While 'soma' emphasises the notion of living through a sentient perceptive body, the term 'aesthetics' devotes attention to the quality of such experience as a key indicator of how we relate with society and our new media-populated environment.

At the turn of the millennium, where it can be argued that electronic representation and communication are at the heart of our social interactions and constructions of identity, Shusterman sees the body as an "organizing centre, where things are brought together and organically conserved" (2000, p.148); in contrast to the fragmentation and hectic flux of information, the body is a presence, which "cannot be erased as easily as a data file" (idem), and I would argue that the human body retains a complex materiality that still needs to be taken into account. Shusterman proposes that a 'somatic turn' is required to find in the body a defence against the rapidly changing society invaded by oppressive media advertising. A positive solution to critique the uniform body constructions central to media advertising "would be to privilege the experiential forms of somaesthetics" (2000, p.151); such an approach encourages bodily experience and pleasure, which in turn helps discovering self identity and promotes multi-sensorial awareness of the world.

The "somaesthetic" approach is not entirely new in theory related with cyberculture[52] and the European phenomenological framework has often been employed to account for the specifics of live performance and contemporary dance[53]. But Shusterman (unlike Foucault, Dewey and Nietschze, whose work he acknowledges) consolidates his philosophical argument on the basis of reference to consistent training and professional practice of somatic techniques such as Alexander or Feldenkrais, thereby reasserting a solid bond between expert practice and theoretical writing. Furthermore, because he is committed to producing "something that the individual can directly translate into a discipline of improved somatic practice" (p. 141), he follows a strongly pragmatic orientation. For these reasons, his conceptualization within a philosophical disciplinary field is validated upon arguments, which are appealing for dance studies.

Shurterman's theoretical argument is a useful tool for this research particularly when considered after its revision by Schiphorst, briefly described above in Chapter 2. In her pragmatic interpretation through practice development, the somatic turn "invites a rethinking of the process of making technology, one that includes design for the experience of the self" (Schiphorst 2008, p.34). This investment in art research for HCI design, namely through the description of the ways displays and transactions with the audience occur and associate with theoretical concerns, provides parameters for a techno-aesthetic examination of the moment of reception, when the artworks become actual through physical engagement of an audience member. In my project of analysis Schiphorst contributes to understanding and appreciating the implications of interactive design for the experience of dance performance in cyberspace.

3.5 Undertaking analysis, process and results

The theoretical references above reviewed contributed to the development of an understanding of dance performance in cyberspace in pragmatic terms: what transfers and what transforms, what is new and what is not, what is it that makes these dances work in a way that we find efficacious or not, how are they reflexive of the culture they refer to? The primary task of analysis in this research undertaking is to facilitate the observation and interpretation of the artworks. Evaluation is implicit in this analysis

[52] In Chapter 2 I have identified, for example, theoretical writings about phenomenology and embodied interaction (Dourish 2001) or studies that substantiate the value of the sensual approach artists have to HCI (Bolter & Gromala 2003).

[53] Namely in writings by Kozel (2007), Broadhurst and Machon (2009) or Horton-Fraleigh (1987).

because my selection depends upon my judgement that these practices are solid and distinctive examples that can stand as representative models for forthcoming practices or theoretical discourses.

Process and criteria to justify evaluation

As Sheppard (1987) points out description, interpretation and evalutation are imbricated in the processes of aesthetic judgement, and a consequence of each other. In this view, attention to elements, materials and structures that constitute the artwork in itself are pre-requisites that will give shape to interpretations of an artwork, which can be many and different. On the other hand we cannot evaluate without interpreting a work, because such evaluation is a direct consequence of the frameworks and contexts involved in interpretation, which in turn play a role in our identification of the components we prioritize in descriptive analysis.

Although the sub-functions of my analysis sometimes intertwine, I have set a structure with common guidelines to address each case study. This structure is flexible to accommodate Preston-Dunlop and Sanchez Colberg's notion of a "stranded medium" (2002), in which discrete analysis is not always suitable; to respect the particularities that make these artworks unique; and to enable a transversal perspective, identifying common characteristics.

Each chapter starts with an introduction to the artists' background that is relevant for, and informative about, the artworks for case study. I also locate these particulars with reference to practices identifyed in Chapter 2.

In a second section I review the thematic focus indicated by the artists and the content that exists before interaction with spectators takes place. The focus on '*a priori*' content reveals how components are generated, used and combined considering technological determinations; this analysis was guided by parameters grouped as a) body/performer/costumes; b) movement/choreography/sound and c) space/place/venue.

The third section considers how the work is displayed to become public, the interface design and the agency allowed to the spectators/users/visitors. I defined as guiding parameters a) interface/interactivity/feedback; b) control/partaking/authorship and c) embodiment/affectivity/experience.

A fourth section re-examines the artworks with theoretical interpretive lenses. For example, the issue of disembodiment is recurrent in writings about new media and the arts (such as Dils 2002; Hansen 2004; Paul 2008); attached to it is the matter about body representations (see Balsamo 2000; or Shusterman 2000 as mentioned before); and

interactivity and electronic artworks raise issues of distribution associated with democratic policies (which we find discussed in Popper, or Fildes)[54].

Throughout my analysis I seek to demonstrate the operation of aesthetic judgement, which is developed upon three major criteria: 1) the success of migration, measured by how new processes were developed to make new and coherent artworks, which provide singular contributions from a dance perspective (qualitative) and a technological perspective; 2) the efficacy of affective engagement, measured by the aesthetic quality of the experience provided; and 3) the coherence in discourse, which is measured by the capacity to express and comment on certain contents related with cyberculture. It is with assessment on how the works comply with these criteria that I articulate my case for their techno-aesthetic 'value'. The application of this structure of parameters, perspectives and evaluation criteria, which I have prioritized in order to examine particular artworks, should allow me to critique the model while also making sense of the examples analysed in terms of the present research undertaking.

Expected results of case analysis

With the literature review in Chapter 2 I have demonstrated that the terminology forming the hexagonal frame of criteria presented in Chapter 1, is variably interpreted; in Chapters 5, 6 and 7 these terms are applied to the artworks, which illuminate the concepts with practical visualization. With this examination I expect to verify how the practitioners use expert knowledge and intuition to combine technological possibilities with artistic intention; how these remain dance-oriented practices and, if indeed we consider that to be the case, whether the digital technologies constrain or liberate the works and those who engage with them.

In Chapters 1 and 2 I have also discussed the tendency towards hybridization that scholars identify in interdisciplinary contemporary art and I have argued that retention of recognizable features, in the migration of dance performance to cyberspace, is essential to validate these artworks as dance and as performance – this subject guides the coming theoretical discussion in Chapter 4. With a case study research design we can draw on concrete examples in order to test my theoretical assumptions.

By inspecting in detail the aim, the form, content, process and result of these artworks I propose to demonstrate that we can detect correspondence to principles that operate in the stage based dance performances that inform the majority of Dance

[54] I have developed analysis regarding this subject before, arguing the interest of articulating dance and digital performance analysis methods with the concept of techno-aesthetics (Varanda 2013).

Studies. This approach allows me to highlight what transfers between the two – i.e. live dance and dance in cyberspace - hence what is genealogical in their characteristics but is achieved with different technologies. It equally enables identification of what is new, what has transformed. We know already that a significant destabilizing factor comes from interactivity, which was set as a technological condition that enables audience participation. From this analysis we can understand the effect of specific technical variations, which are reflexive of different intentions and beliefs.

Finnaly, the characterization that demonstrates how dance migrates to cyberspace, enables us to interpret how the artists assimilate theoretical as well as technical influences and intervene in their cultural environment, potentially expressing political positions. As we have learned from Popper's analysis, virtual art authors (coming from visual art traditions) engage critically with issues such as disembodiment and alienation of the self, invasive and pervasive surveillance, global communities, or visual literacy. I intend to consider therefore how the artists with a dance and performance background contribute to the humanization of these technologies.

4 Chapter 4 - The nature of Dance Performance in Cyberspace

In Chapters 1-3 I have set out to establish some of the terms, background elements and some of the theoretical and other writing that seem to me to be key to the ways I have formulated and undertaken this research project. In Chapter 4, I propose to extend conceptualization of the complex phenomenon of dance performance in cyberspace by identifying and discussing the conditions that seem to me to affect the medium of dance, and its established status as a performing art, when new media has begun over recent decades to have an impact on the ways artists and others think about making dance in a technologically-evolving context and climate.

One of the most challenging issues that confront us as researchers is an apparently simple one for practitioners: do we think differently, do we have different attitudes and a different sense of the possible, when as dance practitioners - choreographers and performers - we are exposed to technological change and what it can offer? As a researcher, the problem that confronts me is clear: how might we articulate research practitioner attitude, and her or his 'sense of the possible'[1]? If the artworks that emerge within this changing context and climate are intrinsically digitized and represented on screens, and are, to some of us at least, recognisably 'dance', can we proceed to claim that 'dance itself' is a new media art? If dance performance in cyberspace is indeed a new media artwork, then what might be some of the implications of such a categorisation for the issue of disciplinary specificity? Should we perhaps view dance performance in cyberspace as combining two instances of disciplinary mastery, or is the one compromised by the development of the other?

Understanding changes in disciplinary identity[2] as a result of migratory processes between territories – a conceptual tool explored in Chapter 3 - facilitates my

[1] The response in research terms is the case study, that we find in Chapters 5-7, below. From actions taken and observed, and from interviews with the practitioners, we can begin to infer both attitude and a sense of the possible.

[2] McFee's discussion of identity in dance aims to distinguish different works related with the same score or narrative, and analyze into what extent different performances of the same work can be considered representative of one single work (1992). I am using the term identity differently, as other authors have, to discuss the nature of dance (Sheets-Johnstone, Fraleigh and Hanstein or Thomas), in order to address how can we identify a dance artwork from other artifacts and performances and how such understanding relates to local specificities, informed by geographical, historical, cultural, or social context.

acknowledging transfer and transformation of features and principles that are constitutive for dance as an art form. Will Bell has asserted, in this regard, that dance seen on television is "constructed through the selection, recording and re-ordering of the primary activity of dance" (Bell in Jordan & Allen 1993, p.XI). Can we argue that something similar takes place in the case of dance artworks that instantiate in cyberspace?

In Chapter 1 I have posed a number of questions that relate to the scarcity and heterogeneity of new media dance, both of which are factors that make certain sorts of research deliberations rather difficult: is cyberspace a suitable 'venue' for dance performance - contrary to what Auslander claimed in his article regarding the venue in the case of performance art (2001). Is it venue, rather than inherent qualities, that helps us identify dance as dance? If this is indeed the case, then might there not be a medium incompatibility in the case of dance and cyberspace? In an attempt to engage with this question, and tentatively to answer it, I explore in this chapter how constituent elements of dance – e.g. body, movement and choreography - may be reconfigured when new media are in use; and I attempt to identify tensions that may arise, and that may, in the event, preclude a wider uptake of the possibilities that dance and cyberspace offer.

The naming of practices, as distinct from their making, equally needs to be reviewed in what follows: I review the notion of venue, introduced above, for the apparently simple reason that the naming of practices and the identification of their perceived purpose, might both be unsettled by cyberspace. Terms such as 'theatre dance' (applied to stage productions) and 'screen dance' (used for many sorts of productions) can be contested or refined on the basis of the case I make here.

4.1 Understanding dance with new media

Dance Studies have theorized dance as an embodied corporeal 'language' (Thomas 1995; and 2003) which has formal, expressive and mimetic possibilities (Copeland & Cohen 1983; and McFee 1992); these together imply agency within temporal-spatial dimensions (Preston-Dunlop & Sanchez-Colberg 2002), and are reflexive of cultural context (Adshead-Lansdale 1999).

Philosophical enquiry in Dance Studies has helped to understand the nature of dance as a human activity with particular epistemological models; anthropological or sociological approaches on the other hand explain the variable status for dance practice in terms of its function in different cultures. The more recent focus on author-led

making processes, the issues of aesthetic qualities, and the development of dance analysis and criticism, together further enlighten us as to the question of 'what dance is' (or what dance 'does') in a live and theatrical performance context.

However, as I have identified in the review (above, Chapter 3) of the Dance Studies community, the widely accepted conceptualization of dance as a body-based human behaviour entails an ontologically-perceived relationship, of the (present and live) body as a medium of dance and of dance as an ephemeral and evanescent art. Theory-building in dance research, which relies on the analysis and interpretation not just of dance performance, but frequently of dance performance that 'works', has been largely calculated on live practice; hence that theorization itself tends to corroborate the understanding that dance is naturally embodied, naturally unmediated – or mediated solely by a choreography that serves that body - and therefore unrecorded at the moment of becoming. It is a live art, that depends on human bodily action. My central argument here is that traditional understanding of what dance is affects the way dance artworks which instantiate with new media are engaged with, considered and evaluated, because they are likely to seem to disrupt the unmediated expression of body movement, enabled by the dancer's prowess, which 'delivers' the work to its audience.

There are however a number of writers who refuse this sort of limitation, suggesting other ways of seeing and knowing dance. As Carter, for example, has reminded us "[i]f the concept of dance itself is malleable, so are the ways of looking at it". Meanwhile, in her words, "the concept of identity is an unstable one" (1998, p.13)[3], an instability that, if it indeed constitutive to dance's identity, limits our ability to write easily about dance's ontology.

Unstable identities?

The notion of unstable identity militates against essentialism. It suggests, too, that perhaps dance as medium and artwork has always been less than stable. The prospect of dissolution of the supposed essentials of dance is particularly useful in the present context but it might also argue against a key notion in my research, which is that of disciplinary specificity and cyberspace. Perhaps for present purposes I can argue that even in the case of the instability of dance's identity, many if not most of us in the field or fields will still agree – as I have suggested above regarding the human body and its

[3] After introducing a collection of texts that covers the incident areas in dance studies and how this discipline may dialogue with other ones, Carter shares the concern that breaking boundaries may affect identity. She admits though, that dance can be studyed from different perspectives, which sometimes means moving to a new space (Carter 1998).

actions - on certain aspects of dance's identity. 'Dance' can hardly migrate to cyberspace, if we deny it certain qualifying aspects that can transfer between these media.

What might these qualifying aspects seem to be, when dance artworks migrate to the realm of technological reproduction and networked media? I have found an interesting degree of underlying resistance to full digitization from both practitioners and theorists, when I drew the mapping in Chapter 1. However, recognisable 'whole human body' performance features in the three case studies that follow, thus indicating evident possibilities. While moving image recordings have permitted the presentation of dance elsewhere and at a different time from that of its live performance[4], access to new media and its potential has amplified possibilities that film initiated at the turn of the 19th century could not imagine. Today we can represent movement in a different image from that of the generating body, choreography can be synthetically generated, and dance can be transmitted in a variety of ways. In the digital age the 'real dancer' can translate to a digital entity in the shape of a twirling drawing, as in the works *Sensuous Geographies* (Rubidge 2006) or *Projecting Performance* (Popat & Preece 2012), and choreography may not require performers as we understand them; moreover visual or sound artists, and indeed the performers themselves, may ponder whether they need the choreographer at all when desktop software can compose 'dance'.

This study attempts to eschew the conflicts that may emerge from such possibilities by grounding references on the work of professional practitioners - a guiding criterion for the extension of this conceptualization of dance. The practitioners will assert *through their work* whether or not there is an ontological issue here; and I shall be arguing that despite the possibilities of change in the nature of dance, disciplinary determination is vital to ensure the preservation of dance, as an aesthetic and quite particular medium, when the physical migrates to the digital-virtual.

The matter of identity for dance is a discussion that we may need to pursue in speculative terms, not only because Dance Studies have already shown that judgements are diverse and subjectively-informed (as may always be the case in art) but also

[4] Dance is a notorious participant on the early moving image experiences, as the 'serpentine dance' films by Dickson (1894) and the Lumiére brothers (1899), became iconic examples of and Maya Deren's work with avant-garde cinema inaugurates the lineage of a genre later defined as video-dance (see Deren 2005; or the studies by Whyte 2007; and Bench 2009a) Choreographers and engeneers have also collaborated at initial stages of computer technologies development - from computer aided choreography research in the 1970s to the 1990s explorations of interactive stage performances. Nonetheless only in the XXI century digital technologies become truly accessible (portable products, available with affordable prices, that became ubiquitously used) and processing capabilities offer to dance reasonable means do be a totally digital interactive and streamed artifact.

because aesthetic enquiry has already identified on dance's behalf many different genres and styles; as Fazenda remarks, contemporary dance is author-signed and subject-led (Fazenda 2007). Thus the notion of local ontology – a notion developed in qualitative research theory (Denzin & Lincoln 1994) and that informs my constructivist project - is helpful if we are to proceed. This enquiry focuses on what is generally judged to be dance, rather than simply 'performance', not least when it is instantiated with new media and in the context of cyberculture. The results of such an enquiry, I would argue, will contribute to better understanding what dance can be, today, in the light of technological changes.

Redfern, writing more generally in terms of 'art', has argued that the term art is "essentially complex and essentially contested – a concept, that is, lacking full elaboration, yet nevertheless in general use" (Redfern 1998, p.134). We might well say something similar about dance. As Carter has remarked, dance is a concept that is actually sustained by argument, which benefits from regular scrutiny. By reviewing the implications of new media this study should be able to contribute to extend the understanding of what dance is. As Birringer suggests, in doing so we can also understand what is it that dance can bring anew to the realities extended by new technologies, which in Chapter 2 and 3 above I have identified as cyberculture:

> If technology has decisively challenged bodily boundaries and spatial realities, profoundly affecting the relations between humans and machines, the new convergences between dance and technology reflect back on the question of dance and its physical-sensory relationship to the world: its immediate, phenomenological embodiedness to lived experience in one place. (Birringer 2001, p.121)

Variations of the medium: agency, substance, and territory

The genealogical exercises that authors such as Bolter and Grusin or Manovich have devised have investigated how new media can remediate older media; but how might we understand that investigation's aims in relation to dance? What is the material from which such a quest departs? Where do we start to examine the process of 'remediation', and if it is the case that 'the body' is the medium of dance, how might that body be remediated? In what parts of the system should we focus if we are to address what Bolter and Grusin identify as "remediation"?

This chapter has set off from a general understanding that 'medium' encompasses the means by which human activities are expressed beyond the human

body[5]. This notion, I observed above, may have a range of different meanings: it may refer to *agency*, as the capacity for human beings to express in different ways (specific to a medium) – or to *structure*, where certain factors (specific to the medium) seem to limit or influence the opportunities that individual performers or practitioners have available. In both cases 'remediation' seems to me to suggest certain changes in agency as well as certain changes in structure, specific to another medium.

Bolter and Grusin (1999) articulated the concept of 'remediation'[6] to discuss the assimilation of one medium by another, which they consider to be a defining characteristic of new media (p.45): "A medium is that which appropriates the techniques, forms, and social significance of other media" they observe (p.65). In my view, in spite of some suggestion that the appropriating medium *wholly* assimilates the pre-existing medium, Bolter and Grusin seem to me to illustrate the notion of the medium as a territory: a particular medium has particular workings (as well as structure) and therefore remediates in particular ways, articulating its 'natural' features with the potential of new media. Hence literature for example, can be printed in a book, communicated in a film, a soap opera or a videogame (each of these media may remediate, the one after the other or simultaneously). Each remediated entity is likely to take on characteristics of the new, while retaining 'some aspects' of the source medium. Similarly, what I am calling 'new media dance' remediates both live dance and film dance; one form does not replace the other and it may not be the case that one precedes the other; but new media dance reorganizes choreographic process and its relationship with other artistic disciplines, within a new cultural context of presentation that also brings changes in the physical way audiences can respond to artworks. Each new media dance, importantly, explores 'dance agency' in different ways, without failing to reference agency in the medium of dance in earlier modes.

In his study about telerobotics, Goldberg (2000) retrieves the Latin origin of the term, relating medium to the notion of "mediated experience" which "in contrast to immediate experience, inserts something in the middle, between source and viewer" (p.14). This observation illustrates the notion of medium as a substance that connects to

[5] Generalist sources were consulted online (Oxford English Dictionary, Encyclopedia Britannica and Wikipedia). The search was also conducted on the Stanford Encyclopedia of Philosophy, glossaries of specialized literature and on the main texts of cited references. In biology medium is the liquid environment where cells and organisms grow; we also know medium as the person connecting with the souls of deceased people; the expression 'artistic media' (plural for medium) traditionally referred to the materials used to make the artwork.

[6] I have referred above to Bolter and Grusin's concept of 'remediation' (Chapter 2 and 3) and I will employ their understanding of the principles of immediacy and hypermediacy with case study analysis.

a remote object, person or place[7], and I would argue that we can find such a 'substantial' kind of use in dances that integrate telematic performance. For Manovich (2001) these media, emphasize remote communication (all forms using the prefix 'tele' he remarks) and are different from representational media such as film and video. Representational media are also dependent on the substance and retain a particular temporal dimension, but they are not necessarily concerned with reference to real space and real time presence; canvas-based painting and sculpture are earlier examples in the visual arts: they traditionally depict an absent subject with 'substantial' media, objectifying what has been at some moment a real event, a real action, or an imagined fiction.

The notion of the medium as agency, as we saw above, provides us with a way to address specific ways of doing. By way of example, learning through movement is different from learning through verbal language (an argument that has been developed in epistemological phenomenology); agency for a writer is very different from agency for a dancer, even though they might be referring to the same thing (an idea, a story) – the writer's writing is instrumental for the production of the object of our exchange. We cannot envisage dance without that notion of agency, nor indeed of structure. Action painting requires agency but the 'ways of doing' are, in turn, specific to territorial media and substance media. In the theoretical approaches outlined thus far in this study, however, the notions of agency and structure are barely explored in the terms briefly set out above. I would argue that this absence results from the fact that the writers concerned are not addressing the highly peculiar arts of performing, where instances of agency and the specifics of structure may well overlap, sometimes in ways that are internally contradictory.

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[7] Mediated and mediation are words that have been appropriated by the literature in the arts, media and new media studies or computer sciences, reporting to experience that has something in the middle, between humans or them and other things, and therefore is not immediate. Historically formed in juridical and political contexts, these words carry the sense of assisted negotiation made by a neutral third party that helps resolving a conflict between other parties; museums commonly use the word to describe the intermediaries who link, with guided talks or workshops, artworks and their audiences. I am assuming the relatively loose usage of mediated and mediation as I have found in the specialist literature about dance, performance and digital technologies. Aiming to be more specific of the 'televisual' context, Auslander uses the term 'mediatized, which derivatives from middle / media, but it also used for politics: a sate is mediatized when the property and his ruler are integrated on a bigger state and under another ruler – this meaning has an implicit sense of weakened action. 'Mediatization' has been explored as a concept in media and communication studies, encompassing critical perspectives that study the impacts of information technologies on social dynamics and cultural identities. Therefore, mediated and mediatization, are both suitable terms (see a comparison in Couldry 2008); for this research the term mediation is preferred to direct the discourse towards the modifications that computer technology brings to the practice of dance and avoid hierarchical discussions.

4.2 The medium of dance

The notion of medium-as-substance has been used in dance theory to refer to the body of the performer. From this perspective dance may be understood as something spiritual in kind, manifested through the human body, which is a vehicle to materialize, or to 'output', mental information, rational or emotional in kind. Langer in "Feeling and Form – Virtual Powers" (1983) has attributed this kind of immaterial nature to dance, as a virtual power that the body gives shape to; this notion seems to be in agreement with McLuhan's assumption that the content of speech (which is the content of writing), is "an actual process of thought, which is in itself non-verbal" (1994, p.8). However, these ideas, in my view, disregard the importance of agency for dance to take its place, where that place is organised, in some sense, by 'structure' (as outlined earlier).

In *Understanding Dance* McFee (1992) has pointed out that we can imagine dances without materializing them with concrete agency (particularly dances that we know from experience in our body), but, he adds, they are not dances until they are performed. In similar terms, I have found that thought needs the reverberation of speech to develop, either articulated in spoken or written words (although it may take place differently). It is also by rejecting the notion that content pre-exists its physical manifestation that Sparshott has discarded, as misleading, the idea of 'the body' as the medium of dance:

> To say that a dancer's body is either the medium or the instrument of dance, though not actually false, is misleading. One does not *use* oneself, and if one truly used one's body one would do so not as a wholly embodied being but as a spiritual or cerebral entity to whom the body was extraneous. (Sparshott 1995, p.5)

A 'territorial' and alternative perspective is provided by McFee (1992), who sees artworks typically 'enclosed' in a particular medium, which is integral to their operation and understanding. This perception is in line with Cohen and Copeland's shared views in *What is Dance?* (1983), where they assert that the medium of dance is much more than the human body; for them this is a common-sense idea that does not integrate – and indeed, abandons - all those other theatrical elements that make a dance, such as music, costumes, sets and lights (1983, p.104)[8]. Preston-Dunlop and Sanchez-Colberg have

[8] Cohen and Copeland are talking about dance as art, and their discussion (placed at a section entitled "The medium of dance") hosts a group of essays where two tendencies meet: the modernist / purist perspective which privileges an art form restricted to its own capabilities (ballet examples are given that favor performance of the moving body with no theatrical artifices like protagonist visuals or narratives), and the other stance, which they name primitive or holistic vision of dance, as an art form that can

expressed a similar approach: for them "The nature of the dance medium is a topic of articulation in choreological study where the medium is regarded as multistranded, each strand being interrelated with the others" (2002, p.39); the way the several strands are interconnected defines the identity of a specific dance work.

My own argument is that to understand dance as a multi-stranded medium suits the notion that migrations between the physical-real and the virtual-real can occur with different technologies and new media; if the elements may be variously combined and are interdependent, then different elements may take turns leading the arrangement of other elements. This may overcome or sidestep technological limitations; in some cases choreographic principles lead the work and in others the body has a centralizing role[9].

'Body' as dance's medium?

The notion of medium as territory, which informs the discussion above emphasizes the interconnection (whence the possible de- and re-connection) of various components and, within these, movement and choreography were indicated as elements that require agency as well as structure. Focus on the argument that the body is a primary representative and transmitting substance for dance is necessary, however, because, although not necessarily its single instrument, the body seems to be of central importance for practitioners, as well as spectators, and is frequently thematised in theoretical research.

Helen Thomas, for example, justifies a sociological approach to dance because it reflects "through the medium of the body" (1995, p.1), in the socio-cultural context from which dance emerges. She reinforces this, by observing that the dance artwork cannot be seen without the dancer, since "the body is the primary instrument and means of expression and representation in dance, at least in the West" (p.6).

For Dodds the body is a central element to delineate technical differences between the live and the media territories, as expressed on the stage and in the "medium of television" (2001, p.30); to explain such distinctions, she compares the prominent features and limits of the "screen body" and the "live body".

Finally, although McFee supported the idea of dance as a particular medium that entails different elements, conventions and procedures, which best suit its own nature, he also acknowledges that "[t]he medium, the body in motion, is involved as soon as

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accommodate the work of total art, developed by Wagner with opera, where words, sounds and visual settings strengthen the discursive dimension of dance performances.

[9] For example In Lord's web-dance *Lifeblood* (see Chapter 2) choreography is transmitted through a descriptive text, however the text is descriptive of the performer's agency in a fictional environment.

anything recognizable as dance exists" (1992, p.222). Extending this position, for the study of movement from a "choreological perspective", Preston-Dunlop and Sanchez-Colberg argue "[t]hat the performer as mediator is ever present in an embodied performative art is the starting point." (2002, p.61).

In 2011 whilst investigating the conceptual variations of the word medium, I saw a performance in Lisbon called *The body is the medium of dance & Other Parts* (Vanilton Lakka, 2007). This was a multiple piece with live stage performance, a vocal description available by telephone, a flipbook and a web-page picture game - such diversity provided an interesting case to illustrate possible migrations of a live art form to different media, and the subsequent transfer or transformations involved.

On his website the choreographer explains that the increasingly present digital reality inspired him to explore the possible surfaces for dance to exist on, and still be recognized as such; thus he explored the notion of body as medium. I found the piece striking and powerful for its dynamic and eloquent contemporary composition of urban dance, and for the experiments with interactivity that occurred throughout the performance when some spectators were occasionally invited to participate inside the stage area. But what clearly expressed Lakka's enquiry was a flipbook handed out at the start of the show that activated a movement phrase (fig.4:1). The little dancer in chalk drawings was very convincing suggesting a poetic stylized dance that joined body, movement and choreography, and happened on the palm of our hand. If the body were to be replaced by a cube, the experience, the meaning and the context would be quite different; another kind of artwork would be created, eventually not recognisable as dance.

Figure 4:1 - Lakka's flipbook in *The body is the medium of dance*[10]

[10] ©Paula Varanda

Making work outside the conventional stage-venue frame, which can be recognizable as dance and dance artwork seems to be a key-concern that drives the practitioners' choices. The choreographers I have interviewed (within the selected case studies) have replied to this question in a quite simple and direct way. Norbert Corsino, who works with motion capture and 3D computer graphics, sees body and choreography as essential things to maintain in his pieces; he considers them indispensable signs of authorship that clarify the status of such practices both as dance and as art[11]. Didier Mulleras said that in his company's compositions, which are specifically made for the web, dance movement and body must be strongly present[12]. This has to do with the will to remain identified with their professional community and their field of artistic practice, as Corsino indicated; but Mulleras emphasized that because a lot of the viewers of his website dances had never seen contemporary dance before, identification was particularly relevant.

The practitioners suggested that keeping the anthropomorphic image of the body on media representations of dance (fig.4:2) secures the identity of the art form, across different territories where different languages may operate. Similarly, the scholars cited have also acknowledged the centrality of the body to the nature of dance.

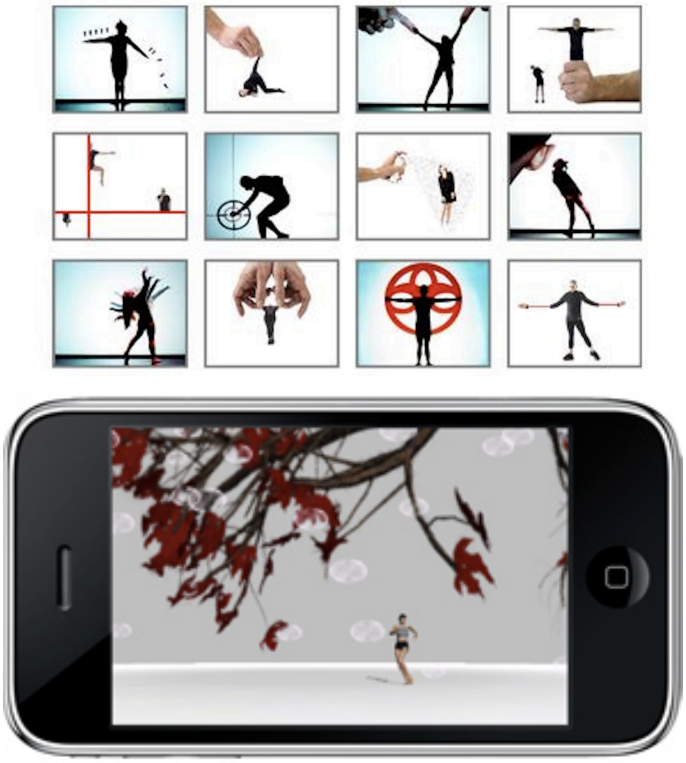

Figure 4:2 - cie. Mulleras web-dance and n+n corsino I-phone app[13]

[11] This company is introduced in Chapter 6.
[12] This company is introduced in Chapter 5.
[13] Screenshots from the artists' websites www.mulleras.com, www.nncorsino.com.

Media representations, it can be argued, may nonetheless destabilize the assumption that dance is a human embodied activity, because the performer on screen is no longer material but a detached copy of its original maker that is replayed by someone else (the technician or the user for example). Once the body is 'captured' into the electronic system and becomes an image, which is part of a data bank, it has its own 'life' in that system, depending on the editing choices that make a final dance work, the kinds of new media it 'performs' in, and when or where it is seen. Technically this may be criticized as disembodiment, because the represented body no longer has a physical existence and may act or be acted upon away from its initial generator; but if the anthropomorphic representation remains, dance can still be delivered to the audience in an embodied form where the performer can still be viewed as retaining a strong mark of individuality.

The link between human movement and the represented human figure is quite straightforward in 2D image capturing (which evolved from film photography to digital photography). But motion capture technology jeopardizes photographic representation. Issues are radicalized in relation to self-identity because the material body of the performer disappears in the digital representation (becoming dots on the screen), and with 'medium-identity'**,** since movement is not necessarily shown through anthropomorphic representation, it may not look human and therefore the resulting artwork may no longer be recognized as belonging to the dance medium. Motion capture collects and stores sampled movement in 3D coordinates, as numerical data, that can migrate (and animate) other bodies differently represented than the 'source-body', including other physiognomic characteristics, animal forms and even objects or graphic effects[14].

Critiques grounded on the immanent disembodiment motion capture technology brings to dance are not uncommon. In her analysis of the installation piece *Ghostchatching* (1999 by Jones, Eshkar, and Kaiser) Dils asks "What is the impact of leaving the body behind?" (Dils 2002, p.94); although acknowledging the interest of using motion capture in this contemporary dance work, Dils shows scepticism regarding the isolation of motion to be "re-embodied" in a digital figure; she considers that "[w]ithout bodily information such as skin color and sexual characteristics, meaning is depleted" (p.103) and judges that in these situations fundamental aspects of dance become lost 'inside the machines'.

[14] Case 1 – Cie. Mulleras / *96 details* – uses 2D video image in the work; case 2 – n+n+ Corsino / *Soi Moi* – uses optical motion capture and case 3 – Hyde / *Me and My Shadow* - uses kinect microsoft camera for 3D motion capture.

It is therefore necessary to consider that mediation and digital technology can indeed separate human dance movement and human performing body (and the identity of the practitioner, in the professional community). At this point other constituent elements need to step in to certify that despite the mediation involved we may still consider a specific practice to be dance, reinforcing the notion of medium as agency. This exercise also contributes to secure the "multistranded nature" of the medium of dance, which Preston-Dunlop and Sanchez Colberg argued for (2002).

Movement and choreography

Although movement is essentially associated with the nature of dance, aesthetic intention, choreography and context, are required concepts and/or practices to qualify movements as dance - they allow adjusting the reasoning to principles and references that are vulnerable to historical, geographical or cultural perspectives. It is only within such frameworks that we may recognize a particular movement as dance and judge it on that basis.

McFee and Sparshott's philosophical writings cited above derive from experienced spectatorship with genres such as Ballet and Modern Dance; but Postmodern dance incursions on the other hand have staged works where performers may barely move or choreographers use pedestrian or 'everyday' movement. On the other hand, in Contact Improvisation, despite the intrinsic movement dynamism, dancing does not depend on pre-set choreography. This is the tension between intrinsic and extrinsic (Thomas 1995) that must inform any discussion about what dance movement is; it depends on knowledge, context and signature as Dance Studies demonstrate[15]. When mediation is involved another issue needs consideration: what are the sources that can create the movement, which may then be recognized as dance movement?

As essential elements (albeit that are sometimes challenged) movement and choreography may undertake conceptual change when digital technologies enter the arena of dance practice; not only can they be generated and composed from inert objects or images, but they can also be instantiated by the receivers of the immaterial artwork[16]. Such situations disrupt a straightforward understanding that a dance artwork initiates

[15] As my aim is to understand how fundamental concepts are affected and how they interplay to express dance practice and maintain the dance medium across the new media territory, a discussion on the basis of style to define dance movement is inappropriate at this stage.

[16] For example in a project that is designed to encourage the audience to dance, rather than to represent dance, as in *Sensuous Geographies* (Rubidge & MacDonaid 2004) or as in the case selected for this research undertaking and analyzed in Chapter 7.

from a human body, which is simultaneously the source of the movement and where that intentional and organized expression displays. Furthermore dance performance in cyberspace is unlikely to have the venue and/or institutional frames that enable contextual perception[17]. In this situation I argue, for the user-spectator choreography is essential to identify expert practice that distinguishes dance movement (that solicits spectator attention) from everyday movement – which can become dance movement once it is treated choreographically. Moreover, according to Kozel, writing in the late 20thC and on the basis of her knowledge on mediation and machines, movement is fundamental to identify the time-based nature of dance:

> What preserves the distinction between materiality and immateriality in the technology is movement: as moving beings people take on an alternative materiality, while objects become immaterial in their inertia (Kozel 1998, p.84)

Earlier, I used Lakka's flipbook to explain the relevance of having the figure of the body if the work is to be recognized as dance. Now, that same object (the medium-as-substance) demonstrates the relevance of movement to identify the work as dance (the medium-as-agency). The flipbook exemplifies the potential of synthetic animation, which is achieved on a much more sophisticated level with generative digital technology.

Figure 4:3 - Shiryaev's puppet dances[18]

The generation of synthetic movement was achieved in early manual or mechanical animation techniques that accelerate drawings, like the flipbooks and zoetropes[19].

[17] The issue is quite crucial for the topics of identification and legitimization and it will be discussed with case-specific examples in later chapters.
[18] Courtesy of Birgit Beumers from Kinokultura
[19] A carousel shaped device that produces an illusion of action, from a rapid succession of static pictures.

Filmed animation with stop motion allowed further elaboration, with the articulation of elements like the moving subject(s), scenery and music, or other narrative helpers like text – Russian choreographer Alexander Shiryaev was a pioneer who 'remediated' Ballet dance and who possibly choreographed the first virtual dancers (circa 1900), in our history[20] (fig.4:3). Film projection was in turn fundamental to collectively appreciate synthetic dance, in a production-reception relationship that was conventional for performance artworks. These early examples of the history of synthetic dance, which was highlighted in the computer era with Life Forms dance software[21], are indicative that the techniques of mediation, which now is calling for a revision of the commonsensical understanding of dance as 'naturally' unmediated, have a long history.

In traditional animation the illusion of real movement is accomplished with the fast acceleration of images, which momentarily escape the inert condition that Kozel speaks of[22]. While I have argued that the human body is indispensable to understand synthetic movement as dance movement[23], Rubidge prioritizes choreographic principles:

> I would suggest that digital dance must involve the conspicuous use of choreographic concepts as an organising principle, rather than as a means of realising a more generic artistic vision. In this way, a 'choreographic sensibility' can dominate a work, or a work which does not even feature images or representations of the human or anthropomorphic body… (Rubidge 1999, pp. 42-43)

Choreography is an essential feature of dance in the sense of its composition – which selects from more or less stylized movements of the human body – and as the sort of organizing principle that Rubidge defends. What is understood to be choreography has changed through time, as Foster has noted (2011), and other areas have absorbed the term, as an organizing principle or to refer to human-like deliberate or driven movement.

Sparshott endorses the notion that choreographic activity is at the heart of dance as an art form to be watched, and he adopts the defining characteristics used by *The*

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[20] Recentely discovered, Alexander Shiryaev recorded dances in site specific spaces, as well as drawings and puppetry animation in the 1900s. This legacy was compiled by Bocharov in the documentary *Belated Premiére* (the films of Alexander Shiryaev), by Miris Cinema Productions, Russia, in 2003. Information available at http://avs.kinokultura.com [Accessed 24 January 2011]

[21] Research on generative software for choreography and Cunningham's work with Life Forms is referenced in the third section of Chapter 2

[22] Kozel is referring to the complex system set up for the piece *Telematic Dreaming* (Paul Sermon, 1992)

[23] Unlike motion capture – which is sampled movement – synthetic movement is not generated from an animated being; it requires some sort of physical manipulation or editing techniques to be animated.

Dance Encyclopedia, where choreography is indicated as "the art of composing dances; the science of putting together steps to form a dance…" (1995, p.378); some time later Butterworth and Wildschut agree that "Choreography is the making of dance" (2009, p.1), suggesting clear choreographic agency, but they accommodate multiple ways to make dance within contemporary practice and thus have dropped step-making as a defining principle. Whyte (2007) and Bench (2009a) who have analyzed dance and film or dance and computers, both consider the choreographic as a quality and an adjective, rather than a verb or a noun; this sort of usage resonates with Rubidge's understanding of choreography in digital dance. Cinematography and animation in particular also destabilize the properties of dance over the choreographic – as the discussion above about movement pointed out - asking us to rethink what choreography might be and how the word is used[24].

If choreography is the composition of movement for the human body such operation is equally suitable for a real dancer or set of anthropomorphic drawings or 3D graphics to pursue; the principle of dance-making remains valid and evident. This is also what makes Lakka's flipbook dance so distinct and touching: the spectator animates a body that moves under stylized choreographic organisation. However, Rubidge's "choreographic sensibility" moves in another direction, addressing the choreographic as a quality that can be independent from body representation: digital dancing "may not even incorporate what are conventionally recognised as dance images" (1999, p.41).

Camera choreography is a fashionable term in the Screen dance community[25] to refer to movement of the capturing gaze. Video cameras have allowed further 'dancing' to camera operators and 3D animation software opened possibilities of controlling POV[26] at a later stage of production; the subject (a person or something else) may not even be the mover; camera movement is considered to be the choreographic agent of which Harris' *Nine Variations on a dance theme* is an early example[27]. A choreographic activity (or sensibility) may also occur with editing pre-recorded movement with video, motion-capture data and synthesized animation. Repetition, rhythm, sequence of

[24] See Foster (2011) for an historical account of how the term choreography has historically evolved.
[25] By which I refer to the community of choreographers and directors who make dance films and the theorists who analyze them.
[26] Camera POV – point-of-view
[27] The film *Nine Variations on a dance theme* by Hilary Harris from 1966 (DVD in Mitoma 2002) is an early example of this 'discovery' and experimentation. With the same performer-choreography-space, Harris created with camera choreography or montage choreography nine variations of the same dance.

subjects or camera perspectives, all contribute to give the sense of intentional choreographic composition and excite the audience's kinaesthetic empathy[28].

Rubidge's "choreographic sensibility" conceptualization is pertinent and contributes to accommodate certain practices and defend where they belong; otherwise, "what makes such work digital *dance* rather than digital art?" (1999, p.41); and new media enable several layers of choreography to be engaged (suggesting increased and diversified agency). In addition to the subject that is filmed, the capturing device and the editing suite, audience interactivity may originate another choreographic layer[29].

In "3D Alignment Forms", one of Forsythe's *Synchronous Objects…* (2009)[30], traces and colours reproduce the alignments between real dancers performing (fig.4:4); there is no anthropomorphic representation but the positions of expert performers are the source of the dynamic shapes that we can watch - the choreographic strength which is in that source is essential to generate a compelling graphic sequence that has an unequivocal association with the body. We may nonetheless question whether we perceive this as dance because of the institutional frame and the choreographer's name, or due to the fact that we know what the original source of these visualizations is[31].

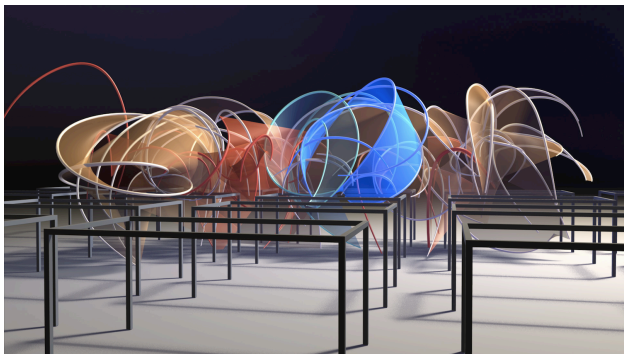

Figure 4:4 – 3D alignment forms in *Synchronous Objects,* Forsythe[32]

[28] As referred in Chapter 3 above, kinaesthetic empathy is a subject of discussion in dance spectatorship, regarding the particular pleasure of engaging with movement that can motivate spectators to go watch a dance (Reason & Reynolds 2010). In my analysis of dance performance in cyberspace practices (Chapters 5,6, and 7) I examine the links between affective engagement with the artworks and kinaesthetic empathy.

[29] Acknowledgement of these layers is relevant for practitioners but also to suggest examination of this potential complexity in the analysis of artworks.

[30] *Synchronous Objects – One Flat Thing Reproduced* (Forsythe 2009) was developed with Ohio State University, to address the issue of expressing choreographic ideas. The result is presented in a website with graphics, scores, animations and discussion, available at http://synchronousobjects.osu.edu/ . The project is discussed as a choreographic resource in (deLahunta & Shaw 2008).

[31] Forsythe's name is a token for choreographic expert-making; he has a solid institutional infrastructure to support his experimentations and, although this particular film was used as an example, the film is framed by the whole project's information in the website, namely with films of the original choreography, where the human bodies are visible. Thus the example is suitable to draw on the existing technological possibilities to migrate physical dance to computer visualizations, but it would hardly be understood as dance, in the terms of a body-based art that we have been discussing until now, when seen out-of-context.

[32] Image from http://synchronousobjects.osu.edu/media/downloads/Obj21_3DAlignmentAnim.jpg [downloaded March 2014]

Rubidge's assertion above, regards a real possibility and represents contemporary aesthetic trends, which have routes in deconstructivist Postmodern dance[33] and are pursued in a significant number of dance films[34]. I am nonetheless cautious in subscribing this discourse in my project of characterizing dance performance in cyberspace.

Dispensing the body, I would argue, has consequences for our perception that something is a dance artwork, and possibly interferes with the matter of identity in essential terms, rather than aesthetic ones; it certainly is a matter that fuels critiques on disembodiment. Lycouris for example, names her research with digital technologies "interdisciplinary choreography", and expunged the word 'dance' from her writing (Lycouris 2009); Bench has called computing operations involved in new media artworks "computational choreographies" that "undergird interactive works' iterative yet idiosyncratic on-screen performances" (2009, p.158).

For dance performance in cyberspace, defining choreography as a score of steps might or might not be essential; 'body' and 'movement' have also proved to be concepts susceptible to the context where they are engaged. However, the term 'choreography' has always been linked to the institutional status of dance as a fine art and carries the notion of discipline-specific expert-making; furthermore choreographic organization (more or less structured and stylized), attributes dance qualities to body movement. Using the term 'choreography' to speak of an organizing principle (structure and agency), which may not refer to dance practice, must be explicitly differentiated from addressing a composition process that organizes performers in time and space to constitute a dance work; although technically it can be done, we must consider the consequences of disembodying choreographic 'writing', particularly if we want to migrate *dance* to cyberspace[35] and enable the possibility of the works being identified as dance artworks.

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[33] From the American Judson Dance Theatre in the 1960s to the European versions represented by choreographers such as Jerôme Bell (France) and Vera Mantero (Portugal) since the late 1990s. Foster (2011) describes the 1960s with the Judson group as a period that strongly contributed to consideration of choreography as a process of decision-making, which was a liberating way of directing interdisciplinary collaboration, dissolving boundaries, and promoting a plural discourse that represents a group of artistic voices. Still fashionable 50 years later, Foster suggests that such notion of choreography challenges the viewers' expectations about the nature of dance.

[34] For example in the films by Miranda Penell (*Tatoo*, 2001) or David Hinton (*Birds*, 2000)

[35] Seeing the screen saver automated graphics 'dancing' on my screen makes me think that artists who have had a dance training and at least for a while worked within a dance community should become more aware of the competition of synthetic dancing sprites, which are made by many graphic designers nowadays, and populate screen-saver animations. Some implications could also be discussed regarding the agency and identity (more in philosophical and sociological terms) of the original performer; in

Places connected with purposes make venues

Where the dance happens is fundamental for its status to be recognized. In Western culture art venues are well identified and they inform us about genres that reflect curatorial choices, either legitimizing the avant-garde or the conventional. Studies in dance informed by philosophical, anthropological or sociological perspectives (as in the writings cited above from McFee, Sparshott, Fazenda or Thomas), have distinguished dance as an art form, from other sorts of human movement and other sorts of dance – for example, collective indigenous practices in anthropological terms - by its purpose, which in turn is associated with where the dance is made public. For Fazenda place and purpose are essential to define theatrical dance: a dance performance, made by a group of performers selected according to the artistic aims of the work, which has a representational and reflexive capacity and is made for an audience (2007).

In Western dance history, the theatre was the place for dance with artistic purpose and, although this is no longer necessarily the case today, for many venues it also corresponded to genre[36]. The theatre provides a set of conventions (in production, presentation and reception) that determines the context where dance is being shown and therefore what audiences may expect to see (and what sort of population constitutes that audience). The proscenium theatre sets a physical boundary that separates the artists who show and the witnessing audience, which is distinctive of most theatrical dance (Fazenda, 2007). The relation between the theatre and dance to clarify purpose and status is however, only adequate to works that function within that physical environment, according to the evidence brought by the increase in screen-delivered works and the theoretical writing that discusses them (for example in Birringer 2008; and Rosenberg 2012).

The term 'screen dance', although coined to address dance that is represented on screen and not on stage, doesn't necessarily reflect the implicit purpose in theatrical dance. 'Screen dance'[37] refers to a whole range of practices where dance appears on

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mainstream animation films, which use Mocap to animate the virtual puppets, it is now regular that the humans stay behind the machines. Mainstream actors who reappear as voices of these characters have a real identity known to a wide public, but that is unlikely to happen with dancers and if they don't have anthropomorphic form then they cannot be recognized in their movement.

[36] The theatre would help distinguishing for example high art, and at some point only the genre of Ballet could enter this status, while the space of cabaret, was where dance as entertainment would occur, in a lower status, as popular art.

[37] The term is flexibly employed by authors and artists; I chose the way Dodds (2002) uses it because her research is very consistent and inclusive of different practices in a theoretical perspective; the separation in two words mirrors the method in theatre (or theatrical) dance. Screen based dance is chosen by Whyte's research on the concept of choreographic sensibility across different media because it is transversal to the contexts of film and television, and escapes historical or material justification (when

screen (Jordan & Allen 1993; Dodds 2001; Mitoma 2002), which may include dance in various ways: documentaries, recordings of stage performance, feature films and advertisements, and as creative dance practice intentionally made to be seen as film. 'Screen dance' artworks can result from adaptation of a pre-existing live work, or be what the professionals calls 'videodance': a form of contemporary dance productions, which in Dodds' view have a "singular disruptive capacity by transgressing live dance methodologies and breaking with film and television conventions" (2001, p.124). 'Videodance' is a term used for so-called 'cutting edge' productions, which include a wide spectrum of approaches, from those having real dancers represented, to camera choreographies that may not have dance as a subject. 'Screen dance' also comprises works that are made for the web, installations where dance is delivered in site-specific spaces and museum galleries, and even interactive CD ROMS fit this label. For Bench the elasticity of the concept positively distinguishes the location of dance practices on the screen, but she also advises caution with allowing "terminological generosity to obscure what remain real differences among media in creation and reception" (2006, p.90).

For the purpose of this research undertaking I find that the screen is a generalist umbrella term, tied to the technologies that enable presentation of electronically mediated dance, which are many; rather than a place or a purpose the screen is indicative of an interface. Therefore, while identifying dance performance in cyberspace as a member of the screen dance 'class' is adequate because the artworks depend on screen interfaces – which will be examined in different versions with case studies – it does not ensure identification with the artistic intention that I perceive to inform the term 'performance', as Thomas has argued (1995)[38]. Theatrical dance is on the other hand a term that helps differentiate artworks from practices with other purposes (like ritual and social dances); however, this expression is tied up with live performance and it sounds paradoxical to speak of a 'theatrical new media dance'.

For Auslander, artworks conceived for cyberspace demonstrate the opportunity to "think about cyberspace as a distinctive venue for performance art" (Auslander 2001,

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screen was a synonym of cinema, or when video or computers are used in a later period) (Whyte 2007). Rosenberg classifies dance movies as Screen dance, which is a genre that emerges from the relations between the dance medium and the film medium (Rosenberg & Vokoun 2006). Screen dance is also adopted to refer to the wide range of practices that use the screen as a viewing platform (Bench 2006a). Rubidge expands the term digital dance to accommodate components of new media that allow real time interactivity. This designation frames practice on a smaller time period but does not carry a spatial reference that specifies purpose (Rubidge 1999).

[38] See quote in Chapter 1 regarding the difficulties of defining dance performance as an object of study to people extraneous to the community.

p.124) and Dodds also acknowledged that "Not only can the internet be employed as a promotional vehicle or information system, but it can also act as a performance platform" (Dodds 2001, p.15). However, we might ask whether the traditional notion of venue – a place associated with purpose, that frames genres, styles and signature-marked practice – can 'remediate' in order to frame dance artworks in the public sphere of cyberspace. In interview Didier Mulleras mentioned that the web was a liberating space: he could explore without the institutional demand of commissions and dominant aesthetic values represented by leading artists; he nonetheless was concerned with distinguishing the company's professional dance from the homemade films uploaded onto youTube. The fact that Auslander's assertion as to the newness of cyberspace as a venue remains fairly applicable today - at least for dance - is indicative that remediating the venue is a challenge that is yet to be resolved:

> Compared with such venerable venues as the theatre, the museum, and even the alternative space, cyberspace is a very young cultural realm whose relation to existing artforms and potential for bringing new ones into being are only just beginning to be negotiated. (Auslander 2001, p.123)

How can we identify dance at this time as a professional and contemporary art practice in cyberspace? Websites that gather online communities, that showcase artworks (see Chapter 2 above), might be a way of forming cultural and artistic 'zones' within the World Wide Web, but they often accumulate several functions, namely informational and archival[39]. Moreover, as I have discussed in Chapter 2 cyberspace is a notion which today conveys more than online networking. When I return to Auslander's argument, which was an important stimulus for this research, I found in the practices themselves a provisory solution: with case-study-based examination we can observe how the artists remediate the venue, and we can understand whether that 'venue' helps identify the work as an expert and discipline-specific artistic practice. Auslander used the term 'venue' to suggest further engagement on the part of artists, but the concern expressed here demands additional questioning, which I propose to pursue in the analysis of the case-studies that substantiate this research undertaking.

[39] 'Virtual venues' have been developed, particularly in the visual arts, as the Museum of Web Art is an early example of (created in 1997 and available at http://www.mowa.org/home.html, [accessed November 2013); well-known museums have part of their collections displayed on line and sometimes include net art. Musée de La Danse is a project of French choreographer Boriz Charmatz available at http://expozero.museedeladanse.org/ [accessed November 2013]; his museum aims to show dance online framed by the idea of venue but is not filled with dances created for cyberspace. A similar case is Davies' archive Replay, mapped in Chapter 2, and Rhizome.org.

4.3 Where is performance?

The discussion above aims to understand to what extent constitutive elements of the 'dance medium' need to remain fundamentally articulated for contemporary dance to be recognized in cyberspace; in this territory principles, processes and aesthetics referential to media forms are implicitly engaged, but in theory dance may be dance in cyberspace and hence be contextualized, if necessary, by the live dominant practice. It would thus invite its 'measurement' against more traditional dance modes. What follows is an analysis of the concept of performance, allowing us to continue to pursue the hypothesis that new media dance is also a performing art and therefore may be studied from that disciplinary perspective.

Kozel has tested and analysed various ways of developing physical and affective interaction, connecting bodies and computers (see Chapter 1 above). For her, "there are limits to what is performance but anything can be studied, or framed, as performance" (Kozel 2007, p.68). Although her pieces always include co-presence of a performer with CMC procedures, Kozel's work and thinking are in line with theoretical writings that consider that performance is also engaged in HCI models[40] (cf Auslander [1999] 2008 and Bench 2006); they all support the notion that interactivity is essential to enable human intervention and therefore ephemeral artworks.

The relevance of this principle to validate the term 'performance' in new media dance is explored in the closing part of this section; however, what I would also argue is that we can validate the term 'performance' on the basis of writings about the elements and the process that characterize dance as a performing (live) art. I have analyzed the literature to comprehend how the elements engaged in making live dance performance are debated in a group of theoretical sources[41]. This undertaking also identifies arguments that support my understanding of the artworks as performance in the following chapters dedicated to case studies.

[40] CMC – computer mediated communication between humans and HCI – human computer interaction, were two models also explained in Chapter 2 with practice examples.

[41] This is a triangulation made with three different theoretical sources: Adshead specifically regards dance analysis, theatrical but not exclusively; Pavis regards performance analysis and therefore extends theory in terms of territory (with theory that is common for theatre and dance); and Schechner theorizes performance as a subject of Performance Studies, referring to various kinds of performance (defined by artistic discipline or cultural purpose). Since what I am trying to find is a coherent grid of essential elements and process that defines dance as a performing art, these perspectives complement each other.

Validating "performance elements"

In her project of articulating a "conceptual structure for the analysis of dance" (Adshead-Lansdale 1988, p.1), Adshead-Lansdale designed a structural grid for observation, considering the key elements of dance to be "movement" (subdivided in spatial and dynamic elements), "dancers" (number, gender and relationship), "visual setting" (the performance area – in the theatre or site specific, clothes, objects and lightning), and "aural elements", ranging from voice to music, including noise (p. 22-32). Although these large groups are described separately for clarity, Adshead-Lansdale emphasizes that movement and dancer can't occur separately and the variation of clusters - "the simultaneous occurrence of a number of elements" - reveals sequential progression throughout the performance (p.32).

Patrice Pavis in *Analyzing Performance: Theater, Dance, and Film* (2003) identified central stage components of theatrical performance to include the actor - who is "at the centre of mise-en-scène and tends to be a focal point drawing together the other elements of the stage" (p.55); space, time and action – a triangular interdependent relationship that manifests the qualities of progression and structure in one performance (p.148); voice, music and rhythm – the actor's voice being part of the whole acoustic group, which "only becomes apparent within the time-space of stage actions" (p.131); and other material elements, like costumes, makeup, objects and lighting, that require a specific approach, particularly in the way they "form different signifying systems" (p.171). Although Pavis briefly addresses the virtual body and virtual stage as emergent realities for performance practice, which bring new tools and conceptual frameworks for analysis (p.46-52), his discussion of components such as body, space and objects is focused on their physical and material substance. Pavis' reference to the immaterial regards the range of meanings and emotions created by the way components blend on stage, through action developing in time, resulting in a performance 'utterance' (mise-en-scène), and as such he fails to approach the immateriality that interests us here.

The central role Pavis acknowledges to the actor and the triangular bond between space, time and action, as well as Adshead-Lansdale's idea of interrelated elements and variation of clusters, are both in agreement with the discussion above that stressed the importance of the human body (actor or dancer) in the action driving a dance performance, relating it to the expression of a medium by both substance, structure and agency. They also indicate the importance of a dynamic interplay between

characteristics of performance, a notion that I propose to pursue in briefly reviewing some of Richard Schechner's writing.

In *Performance Studies: An Introduction* (2002), Schechner has presented a comprehensive revision of what can be considered performance and performativity: this is a realm where the performing arts are included, and within them dance[42]. He explains, with examples, how such notions are dependent on cultural understanding and recognition; they are determined by historical and geographical perspectives that represent particular conventions about something being performance, and thus accommodate or exclude purposes and aesthetic characteristics. Schechner also addresses a formal conception of performance, indicating that practice, behaviour and event – that is, action type, human comportment and boundary-marked time - are the attributes that should frame our looking at something "as performance" (p.2), which he differentiates, as an action mode and engagement, from analysis of objects and things.

It is within this axis conjoining the cultural and the spatio-temporal that two important aspects for my discussion are developed: the first is the performance process and the second is the performance "quadrilogue". For Schechner, process is "a time-space sequence composed of proto-performance, performance, and aftermath" (p.191), that can be studied also as "the dynamic relationship among four categories of players" (p.215), which he calls the quadrilogue. The three main phases of performance are *preparation* (training, devising and rehearsal); *presentation* (with its own preparation moment, the performance itself – delivery and reception - and the context around it); and the *impact* on the performers and the spectators, building archives and reinforcing or disrupting traditions. The performance quadrilogue regards "sourcers, producers, performers and partakers" (p.215); the first three are normally engaged during the whole process, and the partakers, with more or less participation, have a determinant role on the presentation phase and consequent aftermath.

With this model, Schechner provides a basis for understanding "how performances are generated, how they are staged in a focused manner, how they are nested in larger events, and what their long-term effects are"(p.191). A particular performance can be characterized with observation of the variations regarding process and players.

A conceptualization that intersects Schechner's model - which he applies to "all kinds of performances" (p.191) - with the structure of connected elements proposed by

[42] Although considering dance as part of the performing arts circle, he states in this book that his point of view is that of a theatre practitioner working largely in an academic context.

Adshead-Lansdale and Pavis, supports my argument that new media dance qualifies as a performing art because similar protocols are expected to apply in production and reception. In the analysis of case-studies I propose to address whether, despite the mediation involved, bodies and objects still articulate concepts and movement forms, within a spatial-temporal-action relationship that, for a Western cultural context, is recognized as dance performance. Components, process and participation were found, with the appropriate degree of correspondence to stage practice, in various practices that instantiate in cyberspace, which were mapped in Chapter 2.

Validating "performance attributes"

In Mcfee's definition dance is a performing art because the works are multiple (1992); there are always different tokens (performances) of the same type (the piece). Dance films articulate, in their own way, the components and the spatio-temporal relationship that characterizes performance, which were discerned above with Adhsead and Pavis' studies, but they lack some of its fundamental attributes, which underlie Schechner's theory. Although they are time-based (like live dance), they share the object-based nature of traditional visual arts; unlike the live event, dance films are finished and reproducible products that tend to manipulate point of view through the camera lens, they have no type-token variations.

With interactive new media and digital technology practitioners and theoreticians (many identified in Chapter 2), have perceived that performance may remediate in dance artworks that use the screen as a primary interface. This has been the source of argument for several authors who have contributed to attenuate an otherwise endemic divide, as Dixon remarks:

> The notion of liveness has been a perennial theoretical problem since it divided critics and theatregoers almost a century ago following the incorporation of film footage into live theater, and it remains a conundrum that is continually wrestled with both in performance studies and in wider cultural and cyber theory (Dixon 2007, p.115).

The puzzling problem that digital technology brings into the performing arts such as theatre and dance (as Dixon's observation indicates) tends to distract attention from the legitimate task of finding correspondences between components that make up the artwork (whether live performance or digital performance). Debate is still centred in the mediation of human interaction by a machine, which has to do with the now and the here: the coincidence of action in time and space with an audience. This coincidence

remains an emblematic characteristic of the performing arts. The now, the present moment (of performance) links to time, which links to the notion of live and liveness. The here links to space, which links to presence and relationality: dance is thus *for someone*, some*where* – that is, it is relationally-defined.

Liveness and presence are frequently under scrutiny because they are necessary notions to explain performance as an ephemeral action, as opposed to something that would by comparison appear to be a 'dead' or inert reproduction, through the use of digital media[43]. Dixon alerts us to the fundamental problem, emerging from Western philosophic tradition, that still drives and constrains both theorisation and practice: considering that a binary division exists between the live and the non-live, respectively bordered ontologically within performance arts and virtual arts (Dixon 2007).

Auslander, however, writing in the late 1990s, reminds us that cultural and social context will be determinant in changing the way we see distinctions between the live and the mediatized (giving superiority to the first in relation to the latter, especially by some members of the performing arts academia, as an effort of resistance to dominant cultural tradition). He insists, instead, on the fact that they both connect and can be present in very different kinds of events, artistic or not:

> The ideology of liveness that the televisual (the cultural dominant that is now expressed through a variety of media) inherited from television (the medium) has enabled it to displace and replace live performance in a wide variety of cultural contexts (Auslander 2008, p.24).

Auslander considers that because live performance is the cultural production most affected by media domination (in popularity, industrial investment, commercial value, and economic sustainability), we must analyse the relation between the two with further insight, avoiding binary oppositions that will only help marginalize live productions. He identifies several attributes traditionally acknowledged in live performance: immediacy and proximity created by spatial and temporal co-presence of performers and spectators; spontaneity and mutual influence of action and reaction; non-standardized products that are unsuitable for the market economy; ephemeral and spatially-confined events that are real and provide a sense of community (2008).

[43]'Dead-ness' is a poor and ineffective counterpart to 'liveness' when electronic technologies are ubiquitous; as I referred in Chapter 3 above, Norbert Corsino was peremptory when he argued that one cannot say his work is dead art, just because it is not conventionally live. This sounds particularly awkward in French because the performing arts (dance theatre, music, mime, and live art) are institutionally classified as *Les arts vivants* (the living arts).

These attributes are discussed in relation to the ways they are actually used in media forms, and while deconstructing the exclusivity of such qualities in performance, Auslander builds the idea of the performativity of different media, attempting to invert what he views as the common suspicion that contemporary media are killing performance. Performance, he argues, brings the attribute of liveness into media forms and the televisual is particularly important because different spaces are connected in real time and co-presence is instantiated at a distance: "whereas film could only remediate theatre at these structural levels, television could remediate theatre at the ontological level through its claim to immediacy" (p.13).

New media and Internet connections invert the one-way direction of communication, established with mass media, enabling audience participation in the mediated event; according to Auslander. With this technological possibility liveness integrates both the communication model - between humans mediated by computers – and the interactions between humans and computerized media.

Dixon's *Chameleons 3: Net Congestion* (2000), for example, uses telematics for collaborative real-time composition, audience interaction and presentation in cyberspace, principally exploring a CMC model[44]. In Fildes and McPherson's 'hyperchoreographies' liveness operates without co-presence of the performers[45], when the visiting user activates the pre-set content of the artwork[46]. Both examples adapt the attributes of performance (reworking the notions of here and now with digital media) and engage the elementary and processual nature of performance. Because those works use new media they can be interactive and these conditions are decisive for their performative essence.

In dance discourse of the last decade, the qualifier 'performative' and the noun 'performativity' have been extensively used to speak of the transactional function that occurs between actors and spectators, in events that are understood as performances with artistic purpose. To expand the conceptualization of dance, performance and cyberspace as a venue, it is necessary to bring investigations about the nature of dance

[44] Telematic performance will be discussed with the *Me and My Shadow* (Hyde 2012) in Chapter 7.
[45] Telematic performance necessarily involves co-presence of the different participants, either by sound, text or image (as skype conversation is a raw example of); in works that only need the presence of the user (such as *The Truth:The Truth* by Fildes and McPherson), the sense of presence depends on the efficacy of content, interface and feedback. For Ryan (2001) in virtual reality as well as in printed narrative, the sense of presence can be vigorous and intense, depending on the quality of immersive experience provided. Thus the efficacy of the artworks depends on their immersive capacity and this has been a parameter in the model to analyze the case studies, which was presented in Chapter 3.
[46] Web-based dance is a model that will be further discussed in Chapter 5 with the analysis of *96 details* (Mulleras 2007-2009).

into intersection with the notion of performativity[47]. The formulation of Preston-Dunlop and Sanchez-Colberg (2002) has been very influential in British dance literature; but the term is largely used there to describe events that involve performance, in a literal sense, that may not correspond to its intended and more complex meaning in the literature of philosophy, as Rubidge notes:

> The 'strong' sense of performativity needs to take into account the original Austinian sense, that is a performative event is an event (which may or may not entail a conventional performance) not concerned with representing the known, but rather with bringing new states of affairs into being (Rubidge 2009, p.365). [48]

In staged live presentations of a dance piece, which are repeatable, only those that include improvisation (which can be the whole piece) are actually performative in Rubidge's "strong sense" because in such cases the work is unpredictable in advance of performance. Rubidge examines the notion of the performative in a few artistic practices: choreographic performances in installation sets; performances in installations that include technological systems which respond to the choreographed or improvised action of expert performers; and installations where the interactions between audience and the technological systems "give rise to informal performance events" (p. 365). In this last situation, audience behaviour modulates and becomes an integral and creative part of the performance event. Although recognizing that performativity occurs in other instances, Rubidge concludes that such an event "embodies the paradigm of performative installations in the strongest sense".

Because such unpredictability relies on audience participation – which the artists account for when they create a piece – it differs from the token/type variations that McFee described in relation to dance works and their performances. Her own piece, *Sensuous Geographies* (2003), which Rubidge uses as an example, happens in a public and physical space as an event where the originating 'artists' (people and machines) are co-present. Dance presented in cyberspace is different because remote and possibly

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[47] Preston-Dunlop and Sanchez Colberg relate the performative quality of a dance work to the capacity of engagement of that work, which is an indicator of achievement. I am interested in this proposition that shifts the debate from the nature of dance as an art form and performance (within the is it or is it not kind of discussion) towards an analysis of the artistic quality of the artworks produced. That is an important issue to readdress in the next chapters and that justifyed my aim to draw in aesthetic evaluation.

[48] Rubidge presents a solid account and explanation of the term performative based on philosophical theory, that reviews the philosophical approach by John Austin in the 1960s (*How to Do Things With Words*, Oxford: Clarendon Press 1962) and the gender identity perspective of Judith Butler on the 1990s. Butler's notion, Rubidge says, resonates well with the critical stances of contemporary performance; but it is the Austinian sense of the word that Rubidge finds more accurate to describe a condition, which she defends is strongly connected to the kind of choreographic performative installations that she wants to give account of and frame theoretically.

asynchronous communications are articulated there. However, I would argue that such work is also performative (in the sense Rubidge claims the term should be employed) because, by incorporating the new media principle of variability, it is "something that can exist in different, potentially infinite versions" (Manovich 2001, p.36). In this case, the "partakers" of Schechner's "quadrilogue" always play a creative role in presentation.

4.4 Dance performance in cyberspace is conceptually possible

This chapter proposed to review what is understood as essential for the nature of dance and to what extent a migratory movement towards the new media can affect that nature. I have discussed how constituent elements of dance and attributes of performance may be reconsidered when new media principles, interactivity and cyberspace are involved in a professional, artistic dance practice.

The discussion supports the theoretical assumption that what has been theorized as referential in physical practice might remain essential to instantiate dance performance in cyberspace. Digital technologies change the processes of making dance and additionally these artworks require physical audience interaction. New media dances may not be immediately 'uttered' by the performer's body, they may not occur in real time or be co-present with their spectators; but they can still constitute dance performances and be evaluated as such. While the live and digital appear as distinct territories where experience is immediate or mediated, dance performance in cyberspace shares methods and aesthetic features with both the screen and the stage and therefore retains the potential to soften the perceived divide between different territories. The following three chapters, each dedicated to a single case study, will pursue this enquiry by understanding concepts, processes and experience with the examination of empirical and epistemic objects, developed by expert-practitioners.

5 Chapter 5 - 96 details: internet dance art / web-based dance

The case addressed in this chapter is the web-based dance *96 details*, made by Compagnie Mulleras between 2006 and 2009 (fig.5:1). In three long-term projects developed throughout ten years, this company has refined a multimodal combination of Internet and stage versions of the same piece; *96 details* is the last project with this configuration and the stage performance was named *Traces*. The case study and the focus of analysis is the web work, which includes short films of the live version.

Figure 5:1 - *96 details,* screenshot[1]

In terms of its technology *96 details* configures the specifications of multimedia online works (Popper, 2007) and Internet art (Greene, 2004). The project displays on a web-page and requires Internet connection for visitors to browse the network, enter the website and actualise the work by interacting with the system. Amongst the dance community that has studied and/or worked with web-based dance (see Chapter 2, section 4) this typology has been named Hyperchoreography (Fildes & McPherson 2001) and Hyperdance (Bench 2006a).

[1] Screenshot from the work while running on the website at http://www.mulleras.com/96d/web/96d.html [accessed throughout the research until July 2015].

As explained in Chapter 3 above my analysis of each case examines various aspects that I consider constitutive for their identity as artworks. This process aims to account for the singularity of the practice, in terms of the context that, I have argued, informs their appearance, the form they take while combining in the same creative enquiry disciplinary and technological conditions, and the concepts they bring forward or help disclosing through practical experience.

By scrutinizing how these works are made and the kind of experiences they enable, we can equally understand what are they innovating and what are they perpetuating in relation to other forms of practice which have a common disciplinary background. This applies to both making processes and audience transactions, which inform what dance is on the basis of live performance. This analysis and the resulting aesthetic appreciation arguably serves to demonstrate how these case studies can be "epistemic objects"[2]: models to inform further practice development – from these practitioners or others - and 'materializations' of theoretical ideas and conceptualizations.

For the study of the present case – *96 details* by Compagnie Mulleras - I propose first to introduce the company, with reference to the central ideas driving this and previous works, which have consolidated the choreographers' singular approach to the World Wide Web as a medium. Such approach earned the group a deserved, but nonetheless surprising international acclaim, as the company that explored, in a pioneering way (and unrivalled to date), the web as an open studio to make and show contemporary dance.

The second section of this chapter reviews the artworks' thematic focus and pre-existing content, before a user engages with the work; it regards the materials involved in the creative process and conditions imposed by the technologies used to generate, compose and present. In a third section I analyze participation and interactive design: how the human-computer interaction takes place, which affects how the spectator is involved; this connection eventually transforms the form that some constitutive elements had *a priori*. Finally I will discuss the work in relation to an emergent theme in cyberculture, pointing out connections with theories regarding decentred modes of organization, which stimulate distribution and access out of institutional circuits of production and legitimization, and encourage active and critical spectatorship.

To study this case I have contacted directly with the company, observing and experiencing the works, which are still available on line, and I have interviewed the

[2] I am engaging with this concept as defined by Cetina and developed by Melrose (see Chapter 3).

company's director Didier Mulleras in July 2010 (see Appendix 1). In addition I consulted press reviews, promotional articles, other studies and specialized literature, which provide a picture of how this company is represented in public discourse. The analysis is equally framed by the themes, methods and references provided by theoretical writings that have been identified and reviewed in the previous chapters.

5.1 Compagnie Mulleras

Didier and Magali Mulleras founded this company in 1990 in Béziers; they wanted to combine the mission of establishing a professional regular offer of dance classes and performances in a small town in the South of France, with achieving international projection as a contemporary dance company with distinctive choreographic process and aesthetic discourse. This is a small ensemble, funded until 2013 by the local government, where the two directors also performed, choreographed and taught. Four other collaborators - two dancers, a multimedia technician and a manager - were periodically involved in the team[3].

At an early stage of their company's career, Didier - who is also a music composer and feels in his own words to be "naturally driven to work with machines" – developed an interest in using video and the Internet as creative tools and the possibilities of world-wide dissemination; in 1998 the company started integrating multimedia technology in their creative process, which they maintained until 2010. The web-works that precede *96 details* are *Mini@tures* (1998-2001) and *Invisible* (2002-2005)[4]. These works, as well as the company's biographic details, are well documented at their website www.muleras.com [5].

In the interview Didier referred to their work as 'projects', rather than single pieces, because they normally complete each proposal over two years of research and composition, followed by three years of performance presentation and touring. On this sort of basis, I would argue that these are already instances of practice-based research, whose properties I propose to elaborate in the following. With the same enquiry they generate two models of presentation: a web-based work and a stage-based performance. In the website the artists name this "a parallel composition (*écriture*) of the same work,

[3] I think the company might not be working anymore as it was, due to funding cuts or something similar. The last time I have managed to reach Diddier Mulleras, by email and phone, was in June 2013.
[4] Although I have included in the interview with Didier Mulleras a discussion specific to the work *Invisible,* which is therefore transcribed in Appendix 1, I have later decided to restrict the analysis to one single work, which is *96 details*.
[5] See also section 2 of Appendix 1 for an extract of this information

experimenting how dance and music, body and sound, express and combine in different media". Such procedure, Didier explains, allows them to establish a strong connection between the live and the digital body, with advantages for choreographic vocabulary, visual setting and concept development.

The web as a theatre

96 details provides one example where dance performance instantiated the broad concept of cyberspace by adopting the web page as a technical layout model. The project was an artistic proposal that became accessible to the viewers online. A visitor to the website can interact with pre-existing content of the work and, in the same way Rubidge emphasized in relation to interactive installations, the relationship between artwork and audience brings "new states of affairs into being" (Rubidge 2009, p.365). Thus we can say that the authors made use of "cyberspace as a performing art venue" in the general terms defined by Auslander (2001) above.

As I have indicated above Popper categorizes this kind of layout as "multimedia on-line work" (2007) where the electronic interface of a web-page becomes a studio with opportunities for display that extend outreach and compete with mass media communication. In our interview Didier indicated their interest in the web's possibilities of exposure and the new aesthetics resulting from new technical challenges.

Mini@tures (1998-2001) was the company's first project using the web and it received huge cover in the press[6], which provided an account of the singularity of the company's approach and outreach. Rather than exploring the commercial potential of the medium, Didier explains, the choreographers used the web as a "space for creation and experimentation of an idea of mini stage (*miniplateau*x)". The project is a collection of a 100 small films (of 20 to 60 seconds each) organized in 10 series of episodes, which are displayed in a library of icons alongside the viewing window frame (fig.5:2). The website was created for *Mini@tures* and in December 1998 the first clips started showing online[7]. Didier remarks that they had very rewarding feedback:

> Three months later we were receiving emails from the audience, and there were programmers wanting us to travel, asking for a stage production. This really allowed our work to be seen and known, by audience, scholars, and others. It definitely helped the company to continue in professional standards and its international visibility (Didier Mulleras, interview 2010)

[6] A collection of articles and reviews can be found in http://www.mulleras.com/e_presse.html [accessed 8 June 2014] and in Appendix 1 some of the extracts available at the website are also included.
[7] For further detail regarding this project provided by the authors see the interview with me in Appendix 1 and the one with Florence Corin "Animations dansées en ligne" (Corin 1999).

According to Mulleras, publishing the projects on the website was also important for this company to maintain resonance of the work after the ephemeral moment of the live performance; although differently presented at the website, the audience can revisit the work that was seen on stage and thereby share something of the same experience as others. Ten years of experience have consolidated Didier's vision about the Internet as "the smallest but also biggest theatre room of the world" [sic].

In the accounts of Greene (2004) Paul (2008) and Popper (2007) visual artists of an early period of Internet development (between 1995 and 2000) made significant use of the web as a source for networking (between professionals and between artists and users) and were accustomed to critique the medium itself, namely its connection with commercial values and lack of intellectual engagement (either by parody or by developing computer viruses and attacking dot.com domains).

The Mulleras on the other hand were concerned, as practitioners, with crossing the site-specific boundaries associated with different disciplines, transforming working habits and making dance reproducible and visible world-wide, through screen interfaces, of a high quality in technical terms[8] (Corin 1999, p.191). Didier recalls that they saw the web as "some sort of personal TV, it was a miracle at the time" and this enabled distribution to be independent of the institutional circuits of theatres and commissioners. Hence their research was devoted to explore the potential they saw in cyberspace as a venue for dance performance, and therefore eschewing the activist tone of some colleagues of the time, who were working in the visual arts arena.

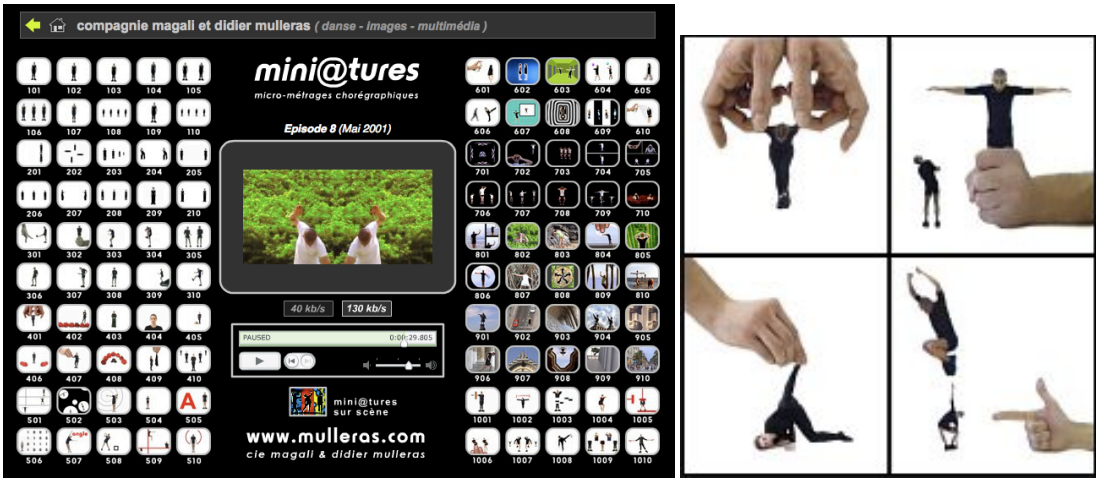


Figure 5:2 – *Mini@tures,* webpage screnshots

[8] In this interview Didier remarked that at that time the reproduction of dance in the Internet was of very poor quality, in technical terms, due to the short capabilities of the hardware and the online signal to reproduce dance with good speed and pixel resolution.

Available literature

Other sources related to the work of Compagnie Mulleras appear in newspaper articles or specialized magazines, and in fewer instances, journal articles or larger studies.

The newspaper and magazine articles account for the history of the company, the launch of the website with *Mini@tures*, and remark various issues that distinguish these artists' approach: placing the body at the centre of experimentation with digital technology to make dance and hence contradict the idea that the material body is overtaken in cyberspace (Boisseau in *Telerama*, 1999). They have developed expert and unique skills to make what Lechner in *Libération*, 2002, described as an "astonishing, unexpected and yet so engaging" work that "has perfectly adapted dance to the web". This way of working with multimedia is new because it links digital and live arts, mixes fragmentation and assemblage, and enables appropriation of the dance artwork by the audience (Catala, in *Musique et Cultures Digitales*, 2007). New media are used to make new dance artworks and reorganize the body within other time and space references (Spanghero in *Trópico* N.D); there was clear intent in conceiving nomad and transversal choreographies, which can take form both on screen and on stage, and the web attenuated the isolation from the international professional dance circuit of a company based in a small seaside touristic village (interview in *L'Art-Vues*, 2007).

On various occasions, particularly with the project *Mini@tures,* the company is mentioned and discussed as a singular case of work with dance and the Internet, integrating wider debates and volumes that include other artists and the international dance and technology scene (Corin 1999; Jaffré 2007). A more detailed discussion of the Mulleras' work in an academic context was found in two articles from students affiliated with Brazilian Universities and a PhD thesis from UCLA (USA). Cristiane Wosniak has studied *Mini@tures* as a cyberdance that interplays with the conceptual framework of the post-human body (Wosniak 2013); and Isabel de Souza has placed *96 details* at the heart of an enquiry about body and interactivity and how the articulation of these elements constructs the meaning of dance artworks where the audience physically interferes (Souza 2011). Bench includes a brief reference to the work of the company to address "the narrativistic as well as stylistic effects of the loop's choreography of repetition", in dance works that use the computer as a developing and instantiating environment (Bench 2009a, p.196).

The above-mentioned texts are useful records that highlight the public acknowledgement of the company, which reinforce the singularity and consistency of its work and thus reinforce the relevance here of constituting the pieces as case studies. Studying the company's pieces as a suitable cases for research has nonetheless clearly only been undertaken by Brazilian writers. Souza's approach is particularly insightful because it also refers to *96 details*; the author contextualizes her analysis with examples of other practices that have explored the connections between dance and the internet, references to conceptualizations laid out by new media theorists (such as Manovich 2001; and Murray 1998) and to scholars that foreground studies about digital performance (Dixon 2007; Santana 2006). Souza explains some of the connections established between the body and the interactive computer system in *96 details*, interpreting certain technological operations and assessing, finally, as positive the vital role of the audience for the "becoming" of the artwork.

While undertaking this research enquiry I myself have published a few articles in conference proceedings, addressing both *Min@tures* and *96 details* as singular projects that illustrate conceptual debates, develop choreographic processes and create innovative aesthetics in terms of body and movement visualizations or transactional experiences[9].

5.2 96 details – *a priori* content: themes, structure and components

96 details (2006-2009) is an on-line work that, as a whole, emerges from several interrelated sections. Each section in turn can contain two typologies: a single short take of either a stage or outdoors action or, in the second typology, a composition of various film fragments, which can be altered and combined as autonomous enclosed short pieces. This is a distinctive characteristic of the project and signals the basis of its originality and complexity: it is made of multiple parts, not necessarily all engaged in one single contact with the piece – suggesting the interest of a number of returns.

In this section I am prioritizing and isolating the pre-existing content before a user engages with the work; the elements are arranged in three groups corresponding to who is performing, what is it being performed and where is it happening. Structured observation of the way the dance works internally with identification of components (as suggested by Adshead-Lansdale 2008) is therefore undertaken; in addition I propose to

[9] See (Varanda 2009; Varanda 2012; Varanda 2013; Varanda 2014a) and abstracts in Appendix 4

discuss the transformation, or transfer of components as a consequence of the new technologies of production and the new medium involved.

Because this project results from several phases of mediation and treatment, traces of which remain visible online, the identification and discussion of content must account for different tasks and agents in the creative process. The source dancing body, which has been choreographically determined, changes after editing operations in the computer; the moment of filming has effects on the choreography and space constructed; and the disposition and combination of multiples is determinant for the public's experience the artwork. These variations are often at the origin of important performative triggers.

Thematic concerns

Following the experience of *Min@tures* and *Invisibile,* Didier explained in our interview, the choreographers intended to develop the concept of a 'living picture' with *96 details*. In this case, he expressed, the body would be a designer or a tool to trace lines and patterns, and they could explore the calligraphic possibilities that choreography could provide. Unlike *Invisible* this work had no narrative, Didier pointed out; here the thematic concern was about body memory and what might be left as a trace of presence, of being human. According to the choreographer this aim then merged with the focus on detail and how things that appear to be insignificant may turn into rather important triggers of a more noticeable action, which in this work is manifested choreographically.

Didier and Magali Mulleras have set up a cube as the frame shape from which fragments, and the choreography within those fragments, develop in space and several units. On their website the work is described as "a suite of artistic modules, able to function close or far from each one. A polymorphic work, which declines its units almost infinitely; a puzzle to be discovered by a fragment or by fusion of each element"[10]. The combinations are possible due to a priori content created for and organized in a coded structure, but *96 details* requires and aimed at the user's unique and creative interaction with the work in order to become actual.

Applying the choreological study framework it can be argued that the thematic concern of this work is strongly engaged with "a medium idea", which Preston-Dunlop and Sanchez-Colberg consider to be the exploration of the medium of dance itself,

[10] See Appendix 1 or the website at http://www.mulleras.com/96d/e_accueil96d.html [accessed 10 June 2014]

focusing on abstractions and geometries that come from choreographic formal compositions, rather than following a narrative structure or a critical agenda committed to cultural issues (2002, p.18). Due to its enquiry into the technologies involved, the "medium idea" conjoins here two major aspects: the dance making and its delivery as an interactive work accessible online.

Structure of the work and samples for analysis

Once we enter the www.mulleras.com website and click the *96 details* title (a hyperlink), we can decide between the stage version and the web works, which are represented by a spinning cube. When we choose the web works the cube unfolds in six square faces, each divided in 8 X 8 small squares, hence making a total of 96 squares. Each face in turn has three or four options of different 'micro-dances'. A total of 19 sections is available for the viewer to click on and engage with. Since for the company each square of the 8 X 8 cube could correspond to a detail, from now onwards I will use the term *detail*, to alternatively designate de sections.

Given the complexity noted above regarding this artwork, and in order to allow a systematic examination, I had to map and catalogue the existing sections that compose the whole. This mapping is recorded with an image (fig.5:3) where I added, to the six squares that appear once the cube is clicked and unfolds, a screenshot of each *detail* with the corresponding numbers, providing an overall picture of the existing content; I have also listed the details and identified characteristics regarding the elements and the interactive features (table 1), which accompany the following analysis. This process allowed me to track major distinguishing characteristics of each section and organize them accordingly, so that a descriptive task could take place, informing the inherent discussion about the work.

From this mapping I have realized that seven details are made of short films with no other controls than sound volume and play/stop the movie. Within these, five sections are films of events occurring on stage - where graphic luminous effects are projected over the white performer and stage floor[11] (numbers 7, 8, 11, 14 and 15) – and two films are site-specific footage of places where the company has toured (9 and

[11] Using white costumes and white floor is a common technique in live dance performances that employ video and want to blend the image with body and space, instead of separating it as a frame in the scenario. The body here stands as a moving and indefinite screen surface and the floor is dynamically shaped and reshaped with a top projection. In *Mini@tures* the idea of human screen is explored in relation to a front projection that ends in the back vertical wall of the stage; in 96 details they practised the top projection floor as a screen technique and idea.

10). Although these details are sometimes useful to understand other sections and the work as a whole, I have not considered them for individual analysis.

From the group of 12 interactive sections I have also focused analysis on a sample of 8 details (2, 4, 5, 6, 13, 16, 17, 18), which are representative of the variations in terms of performer, costume, background, choreography and interactive possibilities contained in the whole.

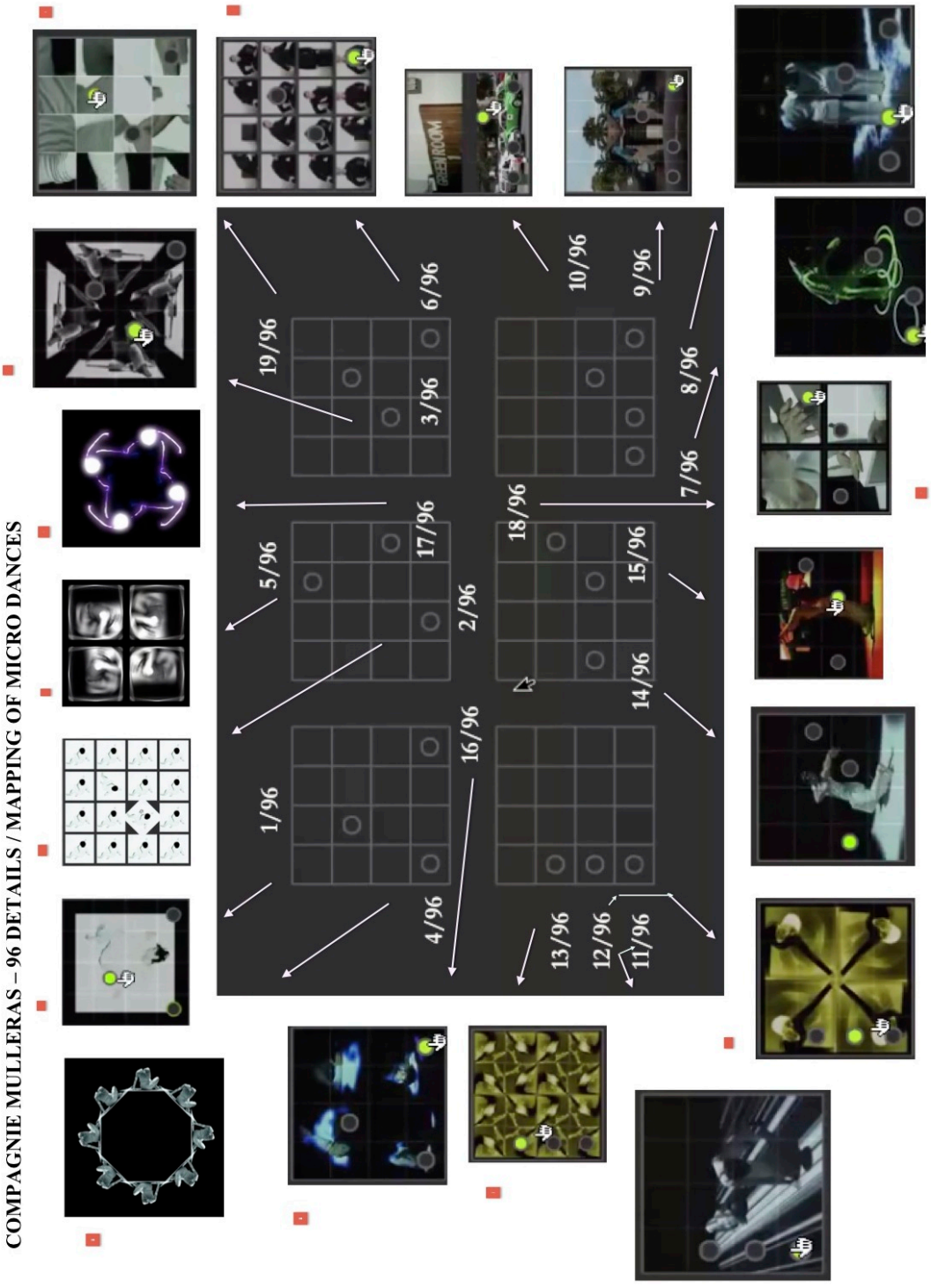


Figure 5:3 Map of sections in *96 details,* compositionwith screenshots

Detail nr	Face Nr	Nick name	Body / costume Performer/	Movement/ Choreography/ Sound	Space/ Place Venue	Visual Effect (post prod)	Camera POV	Inter activity
1	1	1 X White	Woman /white	Phrase 1 – floor support / beat medium pitch	White stage void	Contrast BW	Top – LS	Yes
2	2	16 X White	Woman/white	Phrase 1 / high pitch	White stage void	Contrast BW,	Top – LS	Yes
3	3	4X Mandala	Woman/white	Phrase 1 / cymbals sound	Black stage + white floor	BW 4 sides	Front (tilt down) – LS	Yes
4	1	8X Mandala	Woman/white	Phrase 1 / bass beat	Black stage + white floor	BW 8 sides polygon	Front (tilt down) – LS	Yes
5	2	4 X fish eye	Woman / grey	Phrase 2 –square constraint / radio medium pitch	Inside box	blur, colours, slow	Front&Top – MS	Yes
6	3	16 X Canon face	Woman / black	Phrase 3 - Sitting on chair, vroom and pulse sound	Whyte wall, brown chair	Colour	Front - MS	Yes
7	6	Green dots	Woman / white	Sequence, whisper, words	green circles & lines projection on stage floor	juxtapose projection and 'live' body	Front&tilt down cam mov, editing LS+MS	No / film
8	6	Clouds	2 women /white	Contact, turn around each other, small movements,	Stage with projection, clouds passing	juxtapose projection and 'live' body	As in detail 7	No / film
9	6	Street-walk	Street People	NA - path through town	Site specific – Street	Mirror image	Front – walking, single shot 6'11''	No / film
10	6	Car drive	Street people	NA – various outdoors	Site specific – Street	top screen with photos bottom is video.	Front / tilt, 0'22''	No / film
11	4	Stripes	2 women /white	floor movement, sound loops	Stage with projection, stripes , white floor	juxtapose projection and 'live' body	LS, MS, CU & camera movement	No / film
12	4	4 X Abstract1	Woman in black	Phrase 2 / sound loop high vibrato & voice	Inside the box, Over a white floor	Blur 4 squares, mirror up&sideways effect	Top shot	Yes
13	4	16X Abstract2	Woman in black	Phrase 2 / high vibrato & voice	Inside the box, Over a white floor	4 times detail 12		Yes
14	5	Diamond light	Woman /white	circles around vertical body, Clic clac sound	Stage with projection, diamond , white floor	juxtapose projection and 'live' body	Front and tilt, cam mov, LS + MS 5'20''	No / film
15	5	Fan martial	Woman /white	Impulse & melt - beat loop with echoes	Stage with projection, fan , white floor + 3 projections	juxtapose projection and 'live' body	Frontal + panning LS++ &MS 6'00	No / film
16	1	4X Video mosaic	Woman /white	Phrase 1 – floor support	white floor reflects lights black void	light changing (in the shooting?)	CU , front/side	Yes
17	2	4 X ET mosaic	Woman /white contrast effect	Phrase – 4 stand& swing / sound high vibrato & voice	Void black against which the body glitters	solarizing effect – white dot head & wire arms	Top shot	Yes
18	5	4 X surface	2 women / white	Phrase 5 – sliding volume, Beat sound, with bells	Black background with white object/surfaces	clean video, CUs	Front shot and tilt down shot	YES
19	6	16 x surface	2 women / white	Phrase 5 – sliding volume puzzle pieces to assemble	Black background with white object/surfaces	single take divided in 16 squares	Front shot	Yes

Table 1 - *96 details*, sections content

Body, performer, costumes

As in the previous works, *96 details* uses video technology to capture the performer's action and the human body, in a 2-dimensional photographic representation, is the central element of the work (fig.5:4). There are two female dancers involved; but with the exception of detail 18, we only see them performing together in the short films of the stage performance (numbers 7, 8, 11, 14 and 15).

The sections prepared for creative interactivity only have a solo performer, which is either one woman or the other. The costume of the performer is a very neutral combination of shirt and trousers, varying between full white (in details 2, 4, 13, 16 and 18) and full grey (detail 5) or full black (detail 6). *96 details* is a piece that appears to be a solo performance; however, except in detail 1, the solo is multiplied in the same section with film duplicates running simultaneously (either 4, 8, 9 or 16 times). This gives the impression of a group performance, particularly in detail 17, where the illusion of a quartet is quite convincing because 'each performer' (each duplicate of the same source) starts facing the centre and the 'four performers' create a circular design.

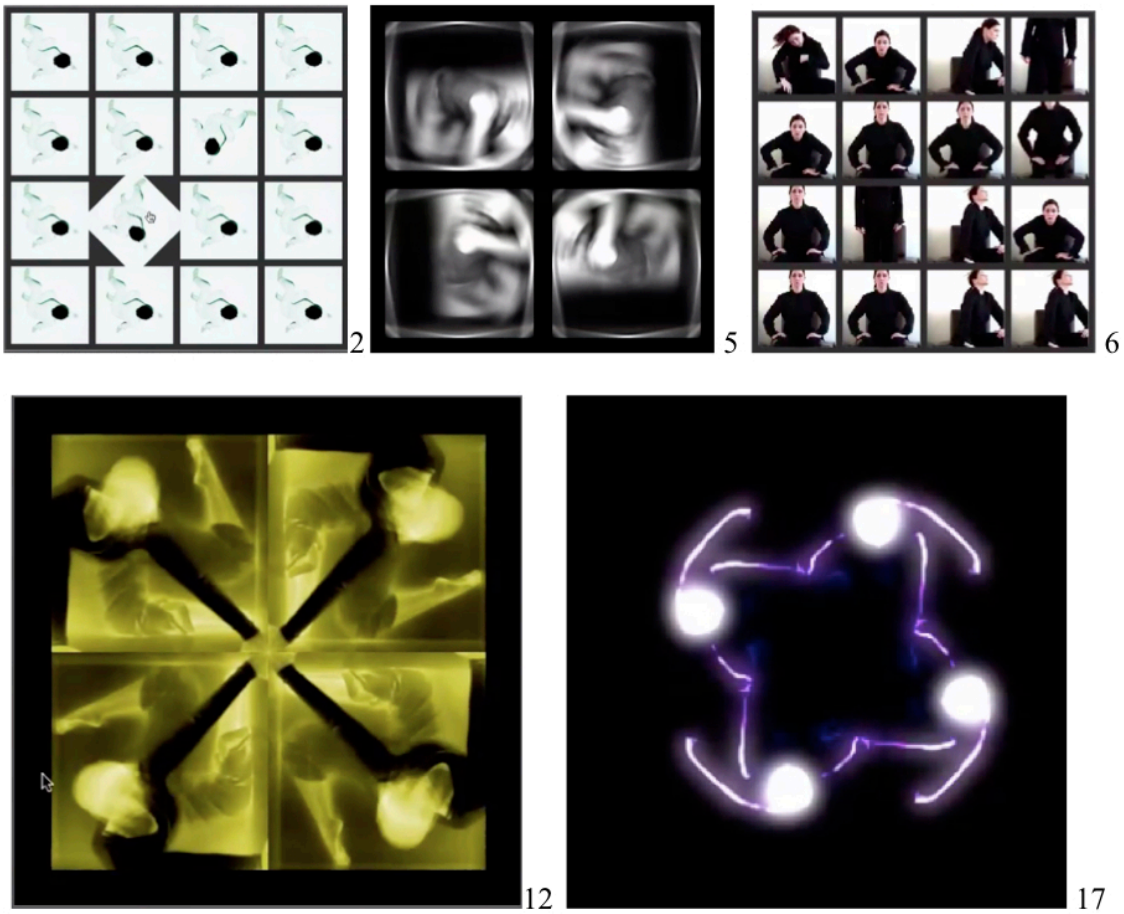


Figure 5:4 - *96 details*, different representations of the 2D body, screenshots

The simplicity of costumes emphasizes the body as a moving agent and corresponds to technical demands and the purpose of combining fragments within a same section and playing with drawing lines, shapes and patterns. The character of the performer relies mostly on the movement and its relation with the environment; the performer's face is visible for small instants in details 1, 2, 16 and 18 and it is only a featuring characteristic in detail 6. In the case of details 5, 13 and 17, the footage has been superimposed with filter effects such as blur, negative[12] and solarizing, that change the body's visual representation and increases abstraction.

We may question the ethical implications of dissolving the human body, and particularly the identity of the performer, into abstract drawings patterns, which appears to be at stake in *96 details*. This removal of identity, when confronted with theoretical writings that address contemporary performance artworks, potentially weakens my positive evaluation of this web-based dance.

For Preston-Dunlop and Sanchez-Colberg prioritizing the term 'body' rather than the term 'performer' in dance discourses is problematic because it suggests "an impersonal physicality when works require dancers to be highly personal, creative, individual, thoughtful people" (2002 p.41). In the context of a collection of essays around the theme of virtual embodiment and interactivity (Broadhurst & Machon 2006)[13], Melrose questions the adequateness of using the term 'body' in the discussion of recent and innovative work, particularly in dance, as it fails to acknowledge the dancer as an expert-practitioner and imposes, on her or him, "an anonymising and de-professionalizing label" (p.7).

I agree with the above positions, and am aware they contribute to reinforce the qualitative specificity of the discipline that I have claimed for this study; however, the term 'body' is so widely-used in the literature that discusses interactive design, new media philosophy, virtual art and digital performance because it represents, as Dixon points out, a paradigmatic opposition to the Cartesian body/mind split that has gained fuel in techno-determinist discourses of cyberculture (Dixon 2007).

The concern of 'anonymisation' in dance artworks created with the computer is highlighted by Birringer for whom "The body that matters, the intelligent dancer

[12] A positive image is a normal image. A *negative image* is a total inversion, in which light areas appear dark and vice versa; in video and picture editing software the term 'invert' is also used for this effect.
[13] The introduction text by the editors is entitled "Body, Space, and Technology" and the term/subject body is commonly used in discourses regarding performance, new media and digital technology (see for example Hansen 2004; Dixon 2007; and Broadhurst & Machon 2009)

bearing specific cultural memory and individual gestural expression, is filtered out and animated as abstracted and modified form" (2008, p 176); however, Kozel finds that "We need merely the vestiges of a human form to identify a face or a limb, we need only the suggestion of the line of a torso or a trajectory of movement to register the possibility for physical response" (Kozel 2007, p.108).

After consideration of the issue of "anonymization" I nonetheless remain confident in my opinion that Cie. Mulleras has effectively maintained the presence of the body and movement in the realm of cyberspace. This was both an explicit commitment and a thematic concern, and the choreographers have found a successful process of migration, I would argue, effectively in agreement with the scholarly debate about the dance medium (see Chapter 4); Didier clearly sees the body as a central element and that is mirrored strongly in all of their work. In *96 details* he remarks that "the body is transformed, but only as an illusion, it looks like an insect but it is a real human body". It is therefore a good example supporting Dixon's commentary regarding discipline-oriented digital performance: "Virtual bodies may appear to be bodily transformations to the (receiver's) eye and mind, but no actual metamorphosis takes place within the (sender's/performer's) actual body" (2007, p.212).

Furthermore, closer inspection reveals that the performer is only sometimes anonymized; indeed when intersecting various details we can recognize two distinct women performing. The frame, shot size and filter treatments in details 1, 6 and 16 allow us to identify the performers through their facial physiognomic characteristics; these are triggers that enable us to establish empathy with the individual person. This contact attenuates the abstraction effect in details 5, 17 and 13; these are sections that move our attention from the face to the moving body, which stands as the major identifying element of the performer[14]. The nuances in body configurations and behaviour have, on the other hand, an important role with regard to the variety of experiences enabled - namely affecting kinaesthetic empathy[15].

[14] This is a key subject in dance. Focusing on the body movement as a sign of identity has triggered debates in sociology (Thomas 1995) philosophy (McFee 2011) and cultural studies (Foster 1995). Writings about dance films have also identifyed that many choreographers, in oposition to cinema works driven by narrative, prioritize close up shots in body parts rather than the face and this is part of a qualitative approach to identity representation (see for example Dodds 2001; and Brannigan 2009).

[15] Empathy with dance works can be achieved with stimulation of our kinaesthetic sense: the perception of aesthetic qualities in movement, sensed by improvised or organized combination of temporal and spatial coordinates, together with the moving subject. In Chapter 4 the notion of kinaesthetic has been related with choreography (see also Reason & Reynolds 2010; and Foster 2011).

Movement, Choreography, Sound

In this work the performer's movement is directed by two conditions: a tight space defined by the camera's frame and the square shape (the visual brand-mark of the piece), and the need to resolve in short phrases, which can be infinitely repeated (technically speaking they are programmed to loop[16]). Within these premises we can recognize a stylistic approach to movement that is familiar to Western contemporary dance[17].

In detail 1 we can see a full sequence – phrase 1 - that reappears in various other details (2, 3, 4, and 16). The woman rolls on her knees, opens her arms, closes her legs, turns the torso, sits or lies down, looks towards the viewer or around herself in a smooth but rhythmically-accentuated choreography. The performer explores the space, trying out various ways of supporting the weight of her body and moving inside this square that is smaller than her whole body length. The performance in the white and confined space reinforces, in my view, the exploratory tone of this detail, underlining the question "what can I do with these limitations?" and reflecting, to some extent, the general initial choreographic enquiry in terms of the medium and technologies used.

In detail 5 we can track a similar sequence – phrase 2 (repeated in details 12 and 13) - but there are further extensions of the torso and the arms, and the pace is softer and continuous; furthermore, because the performer pushes her limbs against the limits of the space, and the image has a blurring filter, the sense of enclosure is stressed.

In detail 6 (phrase 3), the performer enters the space, sits on chair looking frontwards and moves the head upwards and the torso sideways with impulses of the supporting knees. Although the whole body is represented with the group of fragments, this phrase is more gestural than all the others and directs focus to the performer's face.

The more expansive and dynamic phrase appears in detail 17 (phrase 4), with a standing and sitting sequence where the performer steps around the space, swings the arms, and spirals around her vertical axis.

Detail 18 (and detail 19) is a close up shot of a sequence where the two performers appear, touching, gliding and leaning on a white box (phrase 5). Here we

[16] Bench explores the notion of looping in relation to repetition as a choreographic tool (Bench 2009a, pp.194–246). In this discussion she congregates theories by Nietzche (The Eternal Return) and Deleuze (Différence).

[17] They combine Laban's kinesphere, floor and contact work, and an author devised mix of vocabularies that derive from styles consolidated with Ballet, Modern dance, expressionist dance and release techniques. The kinesphere is the space that can be reached by extended limbs (Laban [1966] 2011).

can see four different shots, one that shows the faces and the others that focus on other body parts, like the hands and the feet.

As I pointed out when the body/performer construction was examined, in *96 details* an operation of multiplication takes place in 10 of the 12 interactive sections. Reflecting on the making-process Didier recalls: "with capturing I realized that the idea of pattern could happen, and so I worked the choreography again in relation to that possibility". Within this operation some of the details reproduce exactly the same sequence film from beginning to end, creating symmetric mosaic effects (in details 2, 3, 4, 5, 12, 13 and 17); the variation between these sections relies on the number of times each film is reproduced: 4, 8, 9 and 16 times. In other cases (details 6, 16 and 18) the main sequence is fragmented into four phases corresponding to four different films; in detail 6 they are multiplied, apparently randomly, to fill 16 squares. This fragmentation ascribes the motion of a round canon[18] to the overall resulting sequence.

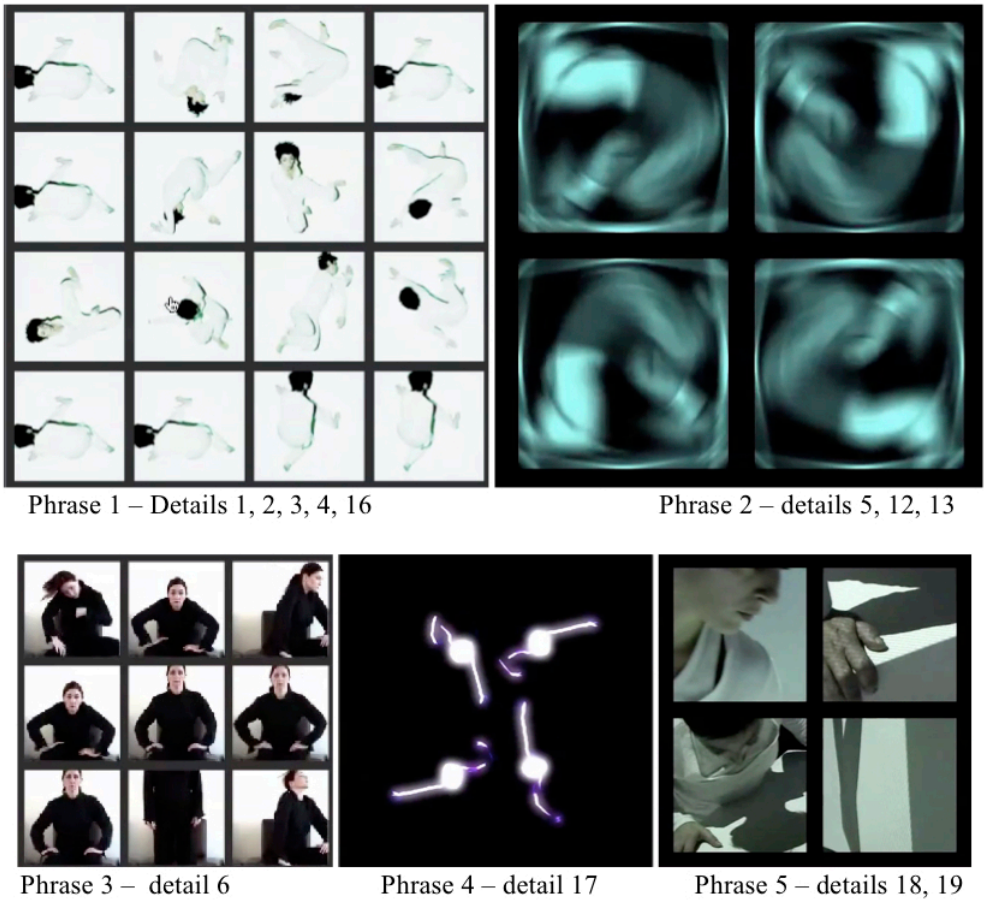


Figure 5:5 - *96 details*, five choreographic phrases, screenshots

[18] I am referring to a round or simple canon effect, which is a music technique where identical voices of the same melody are repeated with varying intervals. In choreography this effect is achieved with people performing the same move one after the other.

The way the choreography is perceived is also affected by the different camera angles and shot size from which the movement sequences have been filmed; in turn - together with visual effects and editing treatment - camera angle plays a role in determining the places of the performance.

Although based on five movement phrases (fig.5:5), camera-angle variations create different micro-dances for the spectator, which can be perceived visually and I would argue, sensed emotionally. Again, it is only through thorough analysis of each detail and comparing between details – something which the user/spectator does not do - that we detect how the same material can originate 12 different details and become aware of which characteristics relate some details to others.

Regarding the sound spectrum, there are 8 looping compositions that have a short and variable duration in different sections; the sound is made of electronic timbres and rhythms, vocal or instrumental, of higher and lower pitch, providing a continuous pulse that supports the movement routines, emphasizing their rhythmic and swaying quality. This can be perceived when a detail loads up and plays its own automatic sequence on the screen; but it also influences the way we click on and off the available controls, suggesting paces and punctuations in the user's interaction and encouraging a musical and compositional engagement with the aural elements.

In live performance the movement is directly generated by the performer's action (improvised or choreographed) and dancing is determined by gravity and the perspective chosen to give to the audience. In *96 details* various layers of choreography accumulate: the 'raw' movement sequence, the space where it is filmed, the camera angle and the shot size, and choices of film cut and speed[19]. All these options have an effect on how we perceive *96 details* as an artwork; they influence the choreographic score, the body representation, the emotional tension and the composition that results from the arrangement and coincidence of these ingredients.

The five movement phrases at the base of the work are short, varying between 10 seconds and 1'30''; although they now seem quite elementary, they result from a meticulous and selective research about the possibilities and the effects of matching the dancing performer and the web as a stage. According to Mulleras, for the *Mini@ture*s project the choreographers spent many hours testing the right configuration of size and resolution so they could broadcast it, and carried out experiments to see how the body

[19] The variations enabled to choreography by capturing, editing and projecting have been extensively reviewed in relation to dance films (see Dodds 2001; Mitoma 2002; McPherson 2006; and Rosenberg 2012).

could move within the small frame; they realized that slow but very well-defined movements were required (which could be accelerated in post production) and on that basis they decided the aesthetics of the project: small, short takes, small movements, light atmosphere. That experience consolidated crucial knowledge to make *96 details*:

> We devised choreographic phrases so that they could be seen from above, and we made discoveries in terms of vocabulary, because there were some movements that did not work and in other cases, only some kinds of movements would work, depending on the planes used (Didier Mulleras, interview).

In the effort to make dance performance appear on the World Wide Web, the Mulleras took onboard the task that Auslander considered crucial for cyberspace to become a venue of medium-specific artworks: "artists will have to find ways of translating their artistic concerns into performances that can be undertaken by virtual performers" (Auslander 2001, p.126). This path has nonetheless restricted the development of choreographic and dramaturgic structures that are a constituent part of live performance that instantiates in a fixed space and durational event. In the recorded film of *Traces*[20] - the live version of *96 details*, which was physically touring in public venues – the space-time dimension of the work is considerably expanded.

Compared to the logics operating in live performance, choreography operates in a radically transformed way in this case study. In Chapter 4 I discussed how choreography stands as a leading compositional feature in dance works. Contemporary dance, in its encompassing diversity has not excluded the notion of mastery in generating, composing and distributing complex movement scores, of which the work of both Cunningham and Forsythe are outstanding examples; but other practices have gained notability for other enquiries, processes and results -namely conceptual dance and improvisation - and have not necessarily dismissed the "choreographic thinking" that Forsythe disclosed with his on-line research tool *Synchronous Objects…*[21].

Despite the apparent simplicity, explicit fragmentation and new media 'nature' of *96 details*, the expert-intuitive knowledge of the choreographers remains essential to make the work effective and engage the spectator on a dance experience via an unlikely medium in an improbable site. Throughout their pioneering research, these artists kept the organizing principle of choreographic concepts, which Rubidge pointed out as a

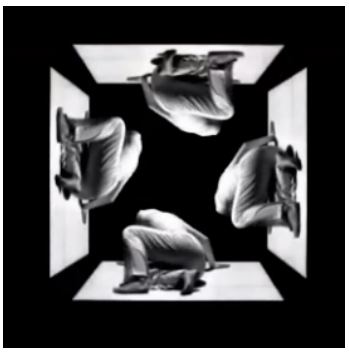
[20] Also at the website: http://www.mulleras.com/96d/e_96ds_Vid_Traces.html [accessed 10 June 2014].
[21] See Chapter 2, for more on this project; recently with *Motion Bank*, Forsythe has extended the analytical tool project to the work of Deborah Hay and Jonathan Burrows, which are choreographic enquiries that have further affiliation with improvisation and conceptual dance practices.

characteristic that differentiates digital dance from other digital artworks (Rubidge 1999). This intention was clearly explicit when the company started *Mini@tures* as Didier remarked in the interview: "we wanted to work more on the choreographic than on the cinematographic".

Space, place, venue

The performance space is defined, in *96 details,* by a cubic area. The cube, Didier informed in our interview, was a formal reference chosen as a starting point for the team to research the possibilities of a new web-based dance project. He explained as well that the cube brought the square plane as a framing shape to the dancer but maintained the tri-dimensional area necessary for the body to move with vertical and horizontal coordinates combined; furthermore they could play with the shift between the horizontal and vertical planes.

The artists used three cameras to film simultaneously the same sequence from three fixed angles (fig.5:6); this technique provides different perspectives of the same dance which where then explored visually. For example, I detected that from the top shot the body appears confined in a square frame (detail 2), but from the front we can see the performer moving on the white floor and against a black background (detail 4). A third position combines the front shot with tilt down and this results in an image where the space is a combination of the white floor surface with the black void of the background (detail 3 and 16). While the front and top positions of the camera emphasize a flat surface, the tilt angle ensures, in my analysis, a sense of depth.


1

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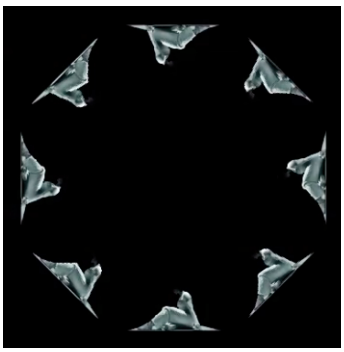

4

Figure 5:6 - *96 details*, three camera angles, screenshots

In her study of dance and the screen, Dodds remarks how "video dance explores certain camera perspectives to create spatial possibilities that could not be achieved on stage" (2001, p.71); she highlights that the notion of space is here employed differently from

that in other genres of screen dance, which reproduce live performance characteristics. Thus we find in *96 details* techniques, which are, according to Dodds, "only applicable to the film or television context" (idem); but with further inspection we can see that the performance space in this artwork is also familiar to theatrical traditions.

In *96 details* the effects of lighting (introduced at the filming phase) or video filters to invert, solarize or contrast the image (in the editing phase), together with the camera angles, the multiplication method and the choreographic triggers (pushing, supporting and gliding for example) all contribute to expand the original filming space – a studio with a white floor and a white box – into the living picture (*tableau vivant*) that was aimed. For the choreographers this way of displaying dance associates the piece with works from visual arts traditions, while at the same time, Didier stressed in the interview, draws the attention to "the body as an agent and the body as an art".

As was the case with the costumes and the choreographic phrases, simplicity in décor was necessary to enable the aesthetic choice to create patterns and drawings from human body motion; technological limitations were also influential: with the small screen and small resolution required in the films, Didier points out, "there was not much area to develop an idea of space". Despite this techno-aesthetic quality, which is specific to *96 details* and its medium, the result is nonetheless similar to contemporary live performances: the preference for a neutral theatrical arena, as in pieces that I have already mentioned by authors such as Lakka (*The Body is the Medium of Dance*) or Cunningham (*Biped*). Bench conceptualized this characteristic with the term *No-place,* which accompanies the migration of dance to different media and is explored according to the layout and technologies involved:

> No-Place i*s* an abstracted space, a blank or evacuated scene. It is, in this sense, nothing. (…) Its very emptiness grounds Western dance practices and launches dancing bodies into new sites by erasing topological specificities. (…) Abstracted from built or natural environments that would situate their movement, bodies wander through space with an illusory freedom, unrestricted by physical or ideological barriers (Bench 2008, p.37)

Preston-Dunlop and Sanchez-Colberg use the word 'space' to refer to the physical spaces where the dance is performed (the stage, the studio, the venue or site-specific places) and such spaces fit choices of set, objects, lighting and other visual effects, which work with the other strands of the dance medium to articulate and produce a performance (2002, p.42). Adshead-Lansdale similarly emphasizes that the visual setting (a component wherein she includes costumes) depends on where the dance takes place (in a church, on stage, in the street) and "may be the result of practical matters or

it may be closely related to the purposes of a dance and the statement it makes" (1988, p.31).

In *96 details* the web-page of Cie. Mulleras is the venue that hosts, in cyberspace, the artwork for the visiting public. The 'auditorium', in metaphoric terms, is the page where the details are mapped and from where they can be accessed individually. The fact that the visual setting is made of 'no-places' - the voids of an empty stage without décor - emphasizes the sense of abstract theatre space; the work thus mixes the model of a museum display of distributed pieces by different gallery rooms and an overarching theatrical environment.

The visual setting where the performance takes place is primarily neutralized; rather than associated with a contextualisable place, the original studio space is only a source that suits a later abstract construction, which results from the performer's agency, the choreographic layers and the visual compositions.

Screendance works according to Bench (2008) transfer the idea of *no-place;* however, by placing the dancer in a void without spatial coordinates, where geographical and even architectural references are erased, inhuman mobility (i.e. without physical constraints) is consequently allowed; liberated from the theatre frame she observes, "dancing bodies are rendered as free-floating images in smooth, shapeless spaces" (Bench 2008, p.40); this observation that she formulated with regard to dance films, characterizes the construction of space explored in *96 details* particularly well.

5.3 *96 details* – transactions between the artwork and the audience

96 details is a dance work that operates within Manovich's new media principles (2001): performers, sounds and spaces need digitization to be numerically represented; the source data is organized in modular parts, that duplicate the original in different ways (shorter, faster or smaller parts, for example); these follow a structure of automatic responses located in the machinery, and the content may be variably assembled (unlike a fixed film). Furthermore, to reach an anonymous public, this piece is displayed in a web-page and therefore is part of the world-wide "communication space" that Levy (2001) defined as cyberspace. Finally, and corresponding to the principle of variability, a central concern, as Didier pointed out, was the possibility for the work to be open to creative intervention from visitors: "In terms of interactive features I wanted to increase the options for the audience to be able to manipulate this

material, and make something really unique of them". In this section I will be scrutinizing how the interaction is technically and aesthetically developed.

Interface, interactivity, feedback

Still available at Compagnie Mulleras' website, *96 details* can be accessed from any device with Internet connection and a web browser - this is how the work concretely instantiates in cyberspace: the venue frame is given by the web-page display format and the work is on-line. Following the layout of previous works, *96 details* was designed for desktop and portable computers, conforming to the specifications of the hardware available at the time (2005). The average screen size is between 17 to 20 inches for desktop computer monitors and 13 to 15 inches for portable computers, generally called notebooks or laptops (fig.5:7).

The interactive details that compose the work appear at the centre of the screen and occupy a third of the browser window, measuring approximately 3 to 5 inches. Both my examination of and experience with the artwork for this research was undertaken with an Apple portable computer MacBook model of 2010, with a 13 inches screen, where the detail frame measures 3,5 inches.

Figure 5:7 – laptop and desktop computer models

The interactive model is a standard click on and off, with a mouse pad, to navigate on the web page, in order to arrive to a sub-page, select details and play with them. The navigation is not organized in a tree structure of hyperlinked pages nor with a path, like in 3D game engines, which the users follow inside the represented space. The graphic layout is that of a major 'hall' where different 'rooms' are mapped and from where we can access each micro-dance[22].

[22] I am using this term because each detail can be seen as a single micro-dance performance; the content is made of short durational fragments, the 'theatre' frame is small, and the performer within also appears in a reduced size, sometimes less than a thumb. Brannigan (2009), uses the term micro differently, naming micro-choreographies the works that make an extensive use of the close up shot.

Text is present at the initial steps to guide entrance into the work and once we are watching one detail, more text identifies the options available to customize combinations of the pre-existing content. Dourish (2001) explains this type of interactive control as graphic user interfaces, based on windows, menus and mouse activation, which was a dominant model of human-computer interaction (HCI) until the early 2000s. This model differs from the previous text-based models because it uses 2-dimensional space and the control options are more explicit through graphic information, which facilitates interactivity (pp.12-14).

After selecting which detail to watch and 'play' with, the visiting user decides on part of its development by clicking on buttons that change parameters. Different options vary or repeat across different details (see table 2); in the overall these possibilities enable us to flip, rotate and move the films inside the square 'stage', pause and restart the sequence of a fragment within a detail, change the speed of the movement or play it backwards, change colour or invert image, select and play or stop the sound. Most details have a question mark icon at the right top-side of the window which, when hovered by the cursor, displays the control possibilities (fig.5:8).

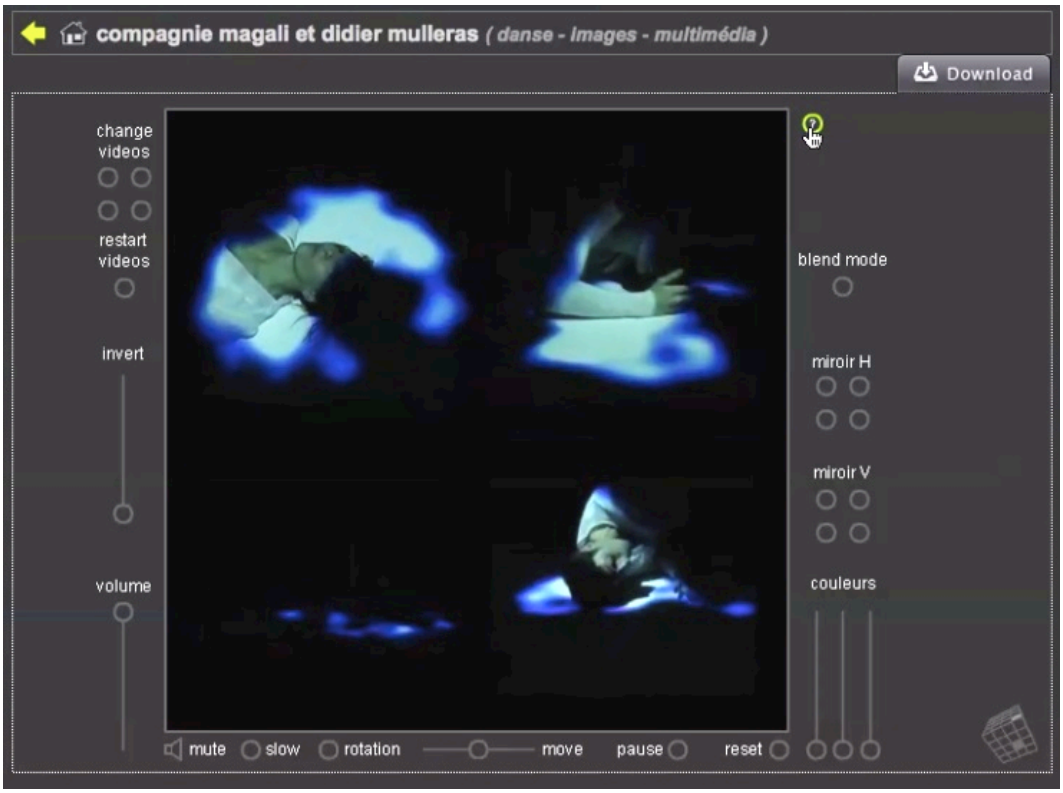


Figure 5:8 – *96 details* image, sound and film controls, screenshot

The user's engagement with *96 details* depends widely in its technical configuration. As I have mentioned above Didier was quite aware of the need to find artistic and

technological solutions, which could work together well and overtake software and hardware limitations. This was firstly resolved with the way of generating and processing the pre-existing content and after with interface design.

Detail nr	Nick Name	Interactive options
1	1 X White	Movement: play, restart, pause, slow, reverse + Picture: rotate + Sound: on/off
2	16 X White	Movement: play, restart, pause, slow, reverse, sampler +Picture: rotate, + Sound: on/off 3 choices + Display: 16 x or 9
3	4X Mandala	Movement: slow, reset + Sound: on/off + Picture: move in/out
4	8X Mandala	Movement: slow, reset, *décalage* + Sound: on/off + Picture: move in/out
5	4 X fish eye	Movement: slow, normal, reset, pause + Sound: on/off + Picture: move around, colours (yellow, magenta, blue)
6	16 X Canon face	Movement: Start /restart sequence in each square (clock on each square) + Pause or reset + Sound: volume
12	4 X Abstract1	Movement: rotate, slow, pause + Picture: move rotation, juxtaposition + Colours: RBY and invert + Sound: on/off
13	16X Abstract2	As in 12
16	4X Video mosaic	Movement: rotate, slow + Picture: Flip horizontal and vertical; move in/out + Videos: choose + Colour: invert and blend solar or not
17	4 X ET mosaic	Movement: rotate, slow, stop, reset + Picture: Flip horizontal and vertical; move in/out + Colour: RBY and blend solar or not
18	4 X surface	Movement: rotate, slow + Picture: Flip horizontal and vertical; move around + Videos: choose + Colour: invert and blend solar or not, RBY
19	16 x surface	Movement rotate squares + reset or show solution. Click films to Rotate video slices (like detail 2) invert gradient + pause+ ask for solution

Table 2 - *96 details*, 12 interactive sections

In *The design of everyday things* Norman ([1988] 2002) avows that understanding and satisfaction is essential for efficacious product use and, consequently for people to prefer one product instead of another. We tend to abandon that which frustrates because we cannot understand how to use it, Norman remarks; designers must therefore balance well the choice of visual aspect with materials, prupose and operation, because "affordances" (p.9) give strong clues to the operation of things, making visible why they are there and how can they be used. Feedback is equally crucial to manage expectations and test usability, because it guides the user with signals that the task is completed or how to continue (p.27). Extending these ideas to computer technology, Norman underlined the importance of compensating with apropriate design the increase of complexity and possibilities involved, particularly if user interest was to be maintained on the basis of a pleasurable interaction.

The interface design and interactive model in *96 details* are quite simple and straightforward to understand and the system's feedback in response to the user's control is immediate. Most details require loading up a fair amount of content such as videos or sounds, which may take some time. However, the system shows how long this will take (because we see a visual countdown) and this is a fast operation (because the files are light) - the waiting moment is minimal and likely to be understood.

In these terms, I conclude, *96 details* is extremely efficacious; as Souza pointed (2011) out the effects of the control buttons, which enable the visitor to interfere, are easy to identify and the work-flow is never interrupted. This is a case where hypermediacy is successfully operating; as Bolter and Grusin explained (see Chapter 2), this principle, which is common in the World Wide Web, emphasizes the performative process and makes the visitor aware of the media in a playful way (1999). Because instructive information is visible in *96 details,* the interactive relationship with the pre-existing content is simple and obvious - awareness of the medium contributes to increase the sense of immersion (Bolter & Gromala 2003) and potentially enhance the aesthetics of experience (Birringer 2008).

Control, partaking, authorship

When clicking on control buttons, or the clips inside each section of *96 details*, the user/spectator creates patterns and abstract drawings from the multiplication of units of body movement, turning the potential choreographies into actuality. It can be argued that the work is truly performative due to its unpredictable and ephemeral outcome; as Birringer pointed out, similarly to a theatre event the interactive artwork "is designed in explicit antecipation of its user: it is always becoming and never completed" (2008, p.180); additionally, the content elements and their organizing principles correspond to those identified in dance performance.

I have discussed in Chapter 4 above the ideas of Schechner, Auslander, Kozel and Rubidge, concerning the suggestion that interactivity is an essential condition to validate the work as performance. In the present case, the user is limited to a few controls and the feedback possibilities are pre-determined. This does allow foreseeing the outcome to some extent, but the 'performance' and its duration are unpredictable. Because the system's functioning is based in looping operations the 'show' will go on as long as the user remains active inside the 'theatre' or the 'gallery'.

Technically speaking this is a closed HCI model, which was characteristic in the 1990s web-based dances (Popat 2006): the user engages with the work without the author's real time co-presence; the dialogue between author and audience is asynchronous and mediated by the electronic media in which the artwork displayed. *96 details* is a case of navigation interactivity[23], which Dixon deems to be the most basic form of relating with content and producing a customized effect. The other categories

[23] Souza (2011) has the same opinion; I have only realized this later, after drawing my own conclusion, but it was interesting to verify that my understanding of the work in these terms was identical to her interpretation.

are excluded because the user/spectator does not integrate the work with his/her own data (text, image, or sound) to join in the 'event' (as in participation) nor is the user's information, which characterizes the collaboration model (Dixon 2007)[24], a primary material of this particular artwork.

However, in the light of Popper's conceptualization, I would argue that what the Mulleras have indicated in the interview to be a specific wish to instigate in their audiences, were reciprocal aesthetic propositions that exceed the simple act of navigation. For Popper if autonomous agency contributes to the aesthetics of the work the user can be considered as a contributing author. Manovich, on the other hand, rejects use of the notion of co-authorship to speak of the result of interactive artworks (2001), and Rubidge distinguishes the artist who creates and produces the work from the creative visitor, who is the co-author of the work-event (2002).

While I acknowledge that the visitor has a creative and actualizing effect in *96 details*, I am also aware that the piece is content-wise highly structured. Such structure is what enables a complex inter-relationship of elements and performative triggers. Didier Mulleras pointed out, at interview, that "in this work the role of the audience is very strong, determinant, it's a major characteristic", but the issue remains whether or not we can attribute the notion of authorship on this basis.

In Performance Studies and Dance Studies, the issue of authorship is a discussion often located between the roles of choreographer and performer, and even of composer and director when there is a pre-existing text or score. Newman, for example, discusses her work as a dancer observing that "It's very difficult to say where the creator and the interpreter take on and leave off" (Newman in Carter 1998, p.57). This is particularly complex in contemporary practices where the dancer contributes both personal experience and creative skills[25] to the work in-hand.

Adshead-Lansdale (2008) has nonetheless shifted the discussion of authorship towards the creative and productive interpretation that takes place when the spectator engages with the discourses constructed in dance performances. Despite their nature as intentional and structured, these embodied 'utterances' are differently perceived by each spectator, who participates in the transitory clarification of the meaning of the

[24] See Chapter 2 for Dixon's four categories of interactivity.

[25] McFee dedicates a whole chapter to discuss the dancers authorship and their role as artists, considering that despite their importance in the work's existence through presentation, the term author or artist should be cautiously applied (McFee 2011). With a different perspective, Foster remarks that from the 1960s onwards choreographers started to use different designations, which would accommodate the dancer's creative role (Foster 2011). Performance as a subject in itself is commonly part of the dance studies concerns (see Carter 1998).

ambiguous dance 'text'. In the present circumstance we are focusing authorship from the viewer's position, assuming that appropriate negotiation of authorship has already taken place within *96 details*' working team[26].

In this case it appears that focusing on the reciprocal aesthetic propositions (using Popper's designation), which have a transient quality (an attribute of performance), is more adequate than debating if the user becomes an author of the work. Although Dixon (2007) and Popat (2006) have identified this exchange as an elementary interactive procedure, in my view - informed by the experience of the work - a rich and compelling aesthetic conversation has been made possible by the makers.
The triadic relationship between choreographer-performer-audience that Preston-Dunlop and Sanchez-Colberg identified as a principle of the dance medium (2002) is strongly operative here: the artwork exists latently, but it literally does not happen without the 'audience' partaking; that role was assumed when the pre-existing content was generated and is clearly indicated in the transactional moment.

The notion of spectatorship extends in this situation to an enhanced experiential event[27] caused by the visitor's physical interaction, whose choices combine with propositions of the authors. Furthermore, this artwork instantiates in a private artist-audience relationship mediated by a personal computer; there is no broadcast and no recording of the result. Without other witnesses to the process itself, the role of creating or performing to the exterior world remains in the pre-existing materials of *96 details*. Such a condition however does not, per se, diminish the artwork's potential to trigger an immersive and pleasurable experience.

Embodiment, affectivity and kinaesthetic play

Until this moment I have addressed the content and interactive design of *96 details,* which stimulate the users to engage creatively. Although reconfigured to this medium-specific practice, the consitutive elements and performance procedures of the dance medium are clearly present and therefore, I argue, the work successfully transfers and transforms and, at once, sets up correspondances with, and innovates in relation to live

[26] The performer is evidently relevant to deliver the work, but in the website *96 details* is credited to the company and its members as a whole.
[27] I am using the expression "enhanced experiential event" cautiously and aware that it can be equally used in relation to performances with no interactivity and technical mediation. Cunningham's *Biped* for example, enhances experience to the physically passive spectator with the virtual 'hand drawn' performers and their 'conversations' with the real dancers on stage. Sound is also a 'natural' enhancer and key element for belief or suspension of disbelief. Suspense, tragedy and brutality are ingredients in dramatic narratives known to contribute to the immersive quality of an event. However, here the experiential is considered to be a situation where contact with the artwork needs physical interactivity that enables intervention in the construction of what is happening.

performance and dance films. In terms of transaction, a differentiating principle between theatre performance and interactive installations, Birringer highlights, is the shift from an aesthetic of contemplation to an aesthetic of experience (2008, p.182)[28]; this is the issue to be excavated now: how can we discuss this experience to the end of supporting aesthetic judgement? Despite the coherence between intention, challenge and result, we do still need to focus on different aspects that are crucial to our engagement with the issue of the aesthetics of experience.

Staying with the work over a particular period of time is vital for its existence. In the theatre or cinema we may disconnect attention when we lose interest in the work, but a greater effort is needed to leave an auditorium of our peers. Here we are in front of a computer, normally our own, where other windows may be open, leading to a text we are writing, an article we are reading, the web browser, which in turn can have several tabs open to email accounts, social networks, or online shopping. The real environment adds to the possibilities of distraction: a picture on the wall, shouting neighbours, cars passing by, a sticker note, a phone call… many physical and psychological stimulae challenge our concentration; to stop all we need is a click. So this dance developing in our desktop must provide something different that persuades us to stay.

In a text about *Sonnambules* (Clauss et al. 2003), Bench recalls how she found this dancework by accident, while navigating in the Web; she indicates the different times, places and type of internet connections upon which she experienced different parts of the dance, following the work in a non-linear sequence of events. Bench draws on the theory of a haptic cinema that for her "brings attention to the sensorial aspects of seeing" (Bench 2006b, p.1); the viewer shares with the haptic two-dimensional image "bodily contact with the screen through synesthesia's combinatory logic, which here imbues the eye/the visual with sensory information usually associated with touch" (p.3). In the interactive new media work, Bench remarks, more is happening than attuning vision and body, because the viewer's interpretation actually changes the work: "body and image *are* surfaces in contact, and they *do* reciprocally inflect each other" (pp.3-4). Because this is a dance artwork, she finds this experience to be close to contact improvisation; although this interaction is mediated by screen and the mouse control: "Tracking moment-to-moment changes, the responsive body receives, interprets, and

[28] This proposition is also inherent in the writings of authors which I have brought before into this conversation, either sitting on the New Media, Performance, or Dance studies chairs in the room (Paul, Manovich, Broadhurst and Kozel, for example). I am quoting Birringuer because he somehow opposes these two terms and, in my own view, if we are evaluating the artwork in terms of a dance performance in cyberspace, this is only true to some extent.

responds to sensory information accordingly" (p.5)[29].

The sort of engagement described by Bench applies well to *96 details* and, I would argue, its unequivocal identity as a dance artwork intended to instantiate in cyberspace is also crucial. For Didier Mulleras it is important that "when people go to the site they go to see a net-art project, and not a part extract of a live project" because they are searching for an interactive experience with dance content and such interest can be fulfilled.

The possibility of relating affectively with screen images, which trigger emotional reactions connected to body sensations, has been theorized by Deleuze and Guattari (1986; 1989); affect plays an important role in ensuring interest and supporting the epistemological value of such an engagement as an empiricist process. If sensation precedes understanding (Deleuze and Guattari make a case for this), the evaluation of the artwork must consider its efficacy in producing sensations, which in turn facilitate the sense of authentic experience. Emphasis that such efficacy and authenticity directly depend on our embodied nature is an argument further developed by Massumi (2002).

For Massumi the human body accommodates both the condition of concreteness (and materiality) and the condition of virtuality, which is "an incorporeal dimension *of the body"* (p.5, author's emphasis). This condition of indeterminacy, where the body is seen as a locus of change with "an intrinsic connection between movement and sensation" (p1), enables a focus on affect as an embodied response. Such a compelling response has an objectifying relational function, which operates in our drive towards something other, but is nonetheless independent of the rationalization and categorization of emotions[30]. Others have argued that interacting with the body in motion is central to spectator response (see for example Reason & Reynolds 2010); kinesthetic empathy - in the present case - is likely to contribute to an affective engagement; the body of the performer and the soft pace of her action, originate a sense of intimacy, which enriches the private encounter that occurs between the audience and the artwork. Massumi's conceptualization is a liberating tool to evaluate the work in terms of the strength of affect as an embodied experience, rather than the intelligibility of the message or

[29] In this text Bench analyses the work within these two major theoretical frameworks recurring to the writings about haptic cinema (Laura Marks, 2002) and contact improvisation (Cynthia Novack, 1990).

[30] Affects are "*virtual synaesthetic perspectives* anchored in (functionally limited by) the actually existing, particular things that embody them" (Massumi 2002, p.35 author's emphasis).

concreteness of the object[31]. This process in enriched by sensorimotor engagement, which Hansen highlighted to be a distinctive characteristic in new media art:

> As if artists have focused in foregrounding the foundation of vision in modalities of bodily sense: insofar as they catalyze an awakening of their viewers to this bodily foundation, the works they create might indeed be understood as efforts to specify what remains distinctly "human" in this age of digital convergence (Hansen 2004, p.12).

96 details is extremely playful and that also characterizes the quality of its experience. Dixon underlines the importance of play for audience engagement and he recalls that "Interactive works encourage a playful, childlike fascination for the pleasure of cause and effect" (p.598); the sense that a simple action-command can transform "something outside of oneself" (idem) has the powerful effect of establishing intimate connections between the individual and the outer world, Dixon argues. In *96 detail*s the system's feedback instigates a creative play with rhythms, shapes, sounds, movement and colours and, to those who are sensitive to such type of artistic interplay (as opposed for example to arithmetic or narrative games), the experience can be quite compelling.

In relation to his hyperchoreographies[32] Fildes has remarked how works such as *The Truth : The Truth* and *Big* - which have similarities with *96 details* in terms of content, interface and interactive design – follow an understanding of choreography as a non-linear process of making choices with networked media to combine movement and performers (Fildes 2008). In this typology the authors take advantage of the game-play aspect of interactivity to stimulate the viewer to engage choreographically with the content and make customized versions.

As I have pointed out above, with regard to the choreographic treatment of *96 details*, looping is an essential technical and aesthetical operation. Manovich considers looping a form of organizing narrative, which emerges in compositions with new media (2001); and Bench regards that "hyperdances" renovate, in this way, the movement repetition method, which is familiar in live dance compositions: "repetition, in the guise of the replay loop, has flourished as a practical means of enabling continuous motion, while at the same time maintaining manageable file sizes and processing speeds" (2009, p.195). In *96 details* continuity is attained with loops of aural and visual materials, facilitating immersion in the kaleidoscopic constructions enabled by the multiplication and disposition of fragments. We can relate affectively and playfully with the elements -

[31] This argument was already inherent in remarks drawn in dance analysis, as developed by Thomas or Preston-Dunlop, and reviewed in Chapter 3.
[32] Fildes shares authorship with Katrina McPherson and their work was reviewed in Chapter 2.

body, movement, space and sound – in a kinaesthetic encounter where we experience choreographic improvisation events; these events resonate and excite our own body because, as Shusterman reinforces all affect is somatically grounded: "a purely disembodied human emotion is a nonentity" (2000, p.153).

The habit of seeing and/or doing directly influences how one experiences and hence appreciates the work; this is true in conventional theatre-based live dance performance and also applies to this web-page based work. Proximity and habit relate to the affinities that cultural context may provide (an argument supported by both Adshead-Lansdale and Thomas[33]) and to expert knowledge as Melrose indicates (2009), which influence evaluation, either with enthusiasm or disinterest. As a professional with well-developed expert skills in both making work and analysing work from others, my appreciation of *96 details* is biased; my sensibility to the affective potential of the dance medium is highly developed and I can readily track the effecacious relation between pre-existing content and interactive design.

In my own experience of *96 details*, I appreciate engaging with the performer, the image and the sounds, and playing with choreography, rhythm, and visual effects – it's a game I know well, therefore I can play the advanced level, exploring to the limit. The quick feedback to my actions sustains my interest because control enhances the consciousness of my role. In this transaction I acknowledge the worth of the work in its intrinsic techno-aesthetic quality, gaining awareness of, and appreciating its complexity. Understanding enhances the pleasure of discovery: how a simple click can trigger a new picture (for example with the mosaics), a new choreographic pace or design (interpolating the sequence), or a new relationship between the body multiples or body parts[34].

This relationship is arguably very different from that of a spectator who sits in the theatre or in the cinema without physical interaction. It is also different from an interactive model where the visitor's input forms the content of the work: in *96 details* I need my own action to experience the work, but I play with the pre-existing content, which stimulates navigation, and the feedback maintains my interest - it's a looping

[33] I explained their argument in Chapter 3, which I find related with Bourdieu's notion that taste is class-determined (1984) which I also referred to in that chapter.

[34] Here my judgement reflects the importance of technology in aesthetic appreciation (Heidegger 1977), which I discussed in Chapter 3. The material, the form and purpose of an object are evaluated in relation to its efficiency, which in art is related to the attended effect on the audience. Rather than subscribing a concealment of what originates the effect of an artwork, this position remarks that understanding how the work is done, how the effect is achieved, contributes to the pleasure of the work. This is particularly evident in *96 details*, as I have earlier discussed, using the notions of hypermediacy (Bolter and Grusin) and affordance (Norman).

relationship, where contemplation and control alternate. Moreover, I can trigger this transaction autonomously (from the generating artists) and as often as I want; I can follow different paths each time and the more I do it, the more I know it, and the more I like it. This unusual possibility for dance performance is otherwise common with recorded music and printed art that we may have within domestic space.

Recurrence and familiarity are attainable out of the public circuit, because the work is available on the web, and this condition is extremely relevant for analysis and consequently evaluation. The Mulleras explore this typology in a stylistic and authorial way, hence customizing, as Popper detects in the virtual arts (2007), the mainstream corporative technologies into disciplinary specific and signature-marked artistic 'objects'. In order to demonstrate the sort of events that may take place within this dance performance in cyberspace, I will now account for my experience with two details of the Mulleras' cube (figs. 5:9 and 5:10).

Experience and event: Mandala Dance

When I launch detail 4, an octagonal white shape resulting from two squares juxtaposed appears against a black void; inside the bordering lines a white mosaic form is moving in a pulsing way, filling or emptying the octagon's centre. I contemplate this for maybe 15 to 60 seconds.

I select and shift the 'move' control to the right, which opens the octagon outwards, and I realize that the border lines are a floor surface and the internal moving form is the dancer performing a sequence. I also realize that the initial mosaic was made from eight replicas of the same short film (dance phrase 4). Now I can appreciate the choreography in full, with the whole body moving, and enjoy the effect of multiplication: the sense of one person becoming a group in unison, and the mosaic resulting of a concrete human body that

fills the negative space of the scene[35]. The contrast between dancer and black void catches my interest; it helps enhance the body contours and the movement details, and triggers a sense of beauty; the refined mastery of that character mixes with solitude, and I retrieve back the perception of a solo. After this I press the '*décalage'* control and then each dancer's replica (although I cannot tell which is the original) initiates the phrase from a different point and a round-canon effect starts taking shape on the stage. Because the multiplied dancer maintains the octagonal frame, a new choreographic layer emerges from the progression of the basic set in a circular line counter clockwise; I very much enjoy this movement and I stay still, appreciating it for a while. I then continue to intervene by shifting the 'move' control to the left, which converges the eight parts again towards the centre. I can play with this: moving outwards and inwards, more or less, slower or faster, and experience the effect this has in drawing the negative space or in the relationship between the body movement and the mosaic angles. If I shift all the way to the left the eight bodies separate again, but now the borderline line is inwards, so the performers seem to be all attached to the same floor, and the more juxtaposed they are the more they create an abstraction. I am entranced with this detail, guided by the pulsing of a continuous base line sound. I find it magical, and I named it "Mandala" inspired by its sense of infinity and round mosaic moving shape.

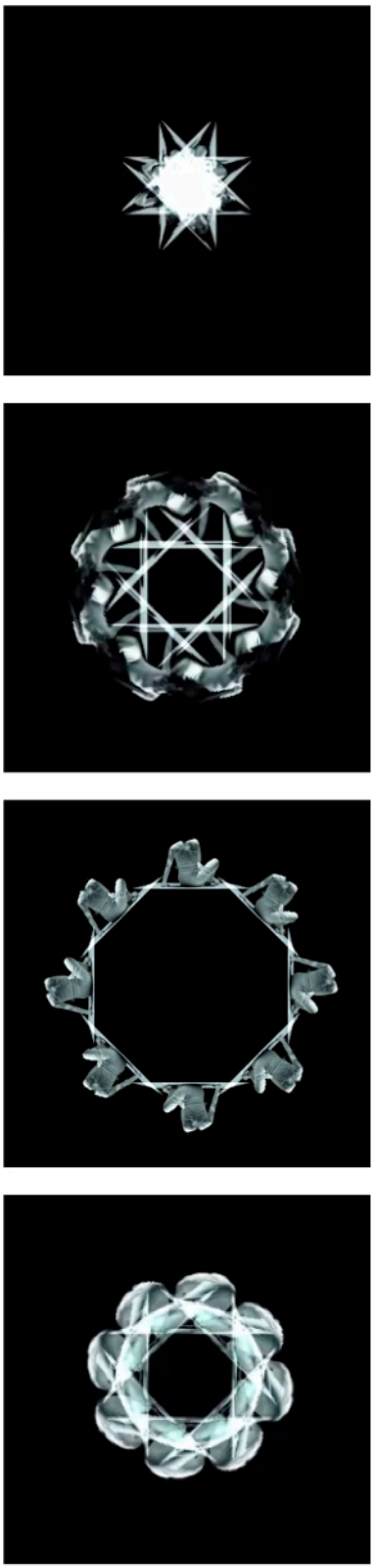
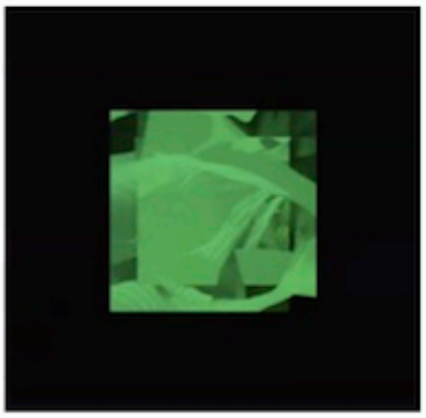


Figure 5:9 – *96 details,* user's sequence with detail 4, screenshots

[35] In 3D design negative space refers to empty space, the space that has no data in computer terms.

Experience and event: Touching and sliding



In detail 18 I find the 'stage' divided in four squares and each displaying a different short film, which is a fragment of a longer dance sequence. Camera movements with close up shots accompany the dancer, who is moving over a white wooden box that is part of the scene. In the top left square the woman goes around the box, which is supporting surface for the hands or the back from left to right (film a); in the top right we see her hand pressing towards the left a then a foot gliding towards the right (film b); in the down left she touches the surface, slides her hand through towards the left and then leans her torso and head (film c); in the square down right the box is turned over towards the left with the hands (film d). The aural atmosphere is a syncopated rhythm on a three/four bar section, on top of which a bell sounds lengthily (a 6 seconds loop).

I can select the films in each square, and my composition starts with film c in all squares. The result is four women sliding the hand down the box surface and then leaning on it; this feels intimate; the touch is soft and the bending over is peaceful; I can sense this movement resonating in my body to a point that I start mirroring the repeated leaning forward.

My next experiment is to flip the films in each square. When flipping the top right horizontally this film mirrors the top left side; from the sum of the pictures a new choreographic layer appears: an expanding movement, from the centre to the outwards limits of the 'stage'. Then I flip the down

left square vertically, and the top left both horizontally and vertically. Now the four heads move outwards from the centre in the top and down edges, and to the middle in the side edges. With more flipping combinations the top dancer converges with the bottom dancer and their hands seem to be reaching out and their torsos leaning towards one another. The film is the same, of the same woman; but with all films converging to a common centre the solo dance appears to become a quartet. I play more with this type of composition, experimenting canons, unisons and sequencing. This has new choreographic results: the dance can develop clockwise through the four squares reproducing a spiralling energy; and I feel the urge to circle my head along with the performance on screen.

Meanwhile I decide to test colours and push the magenta button upwards, warming up the tone of the scene. Later I click the invert control and pull the green colour up; this gives the image quite a different aspect: the stage area dissolves into a painting, with body fragments moving inside.

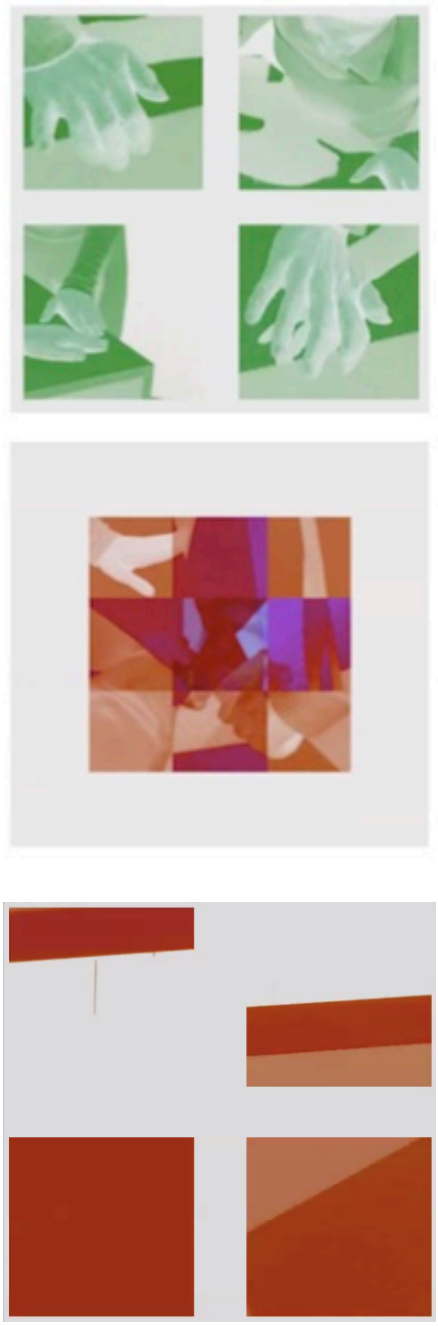


Figure 5:10 – *96 details,* user's interactive sequence with detail 18, screenshots

Another creative interaction was explored with the 'move-films' control, which can move the squares themselves. They are semi-transparent and so we can see through. Dragging the squares halfway inwards we create a 9-square grid; and all the way in they merge in a single small frame where the four films, performers and sequences play juxtaposed. Nothing has changed at source, but what we may see now is a hand, stretching out from a chin, a foot gliding into an arm, a shoulder disappearing into an ear.

Perhaps because of the continuous soft pulse, the looping movement, the real body and the absence of filters in the image, the unlikely body compositions are by no means uncanny; they instead reinforce a pleasant sense of holistic fusion and

multiplicity, of which we can be part. Sometimes this produces a full abstraction; at that moment, playing with colours or flipping the films and inverting back with white has other interesting results; we become close to live painting, playing with cubism, performance and pop art in the same picture. I call this event "touching and sliding" because those movements, in the scene, triggered a strong haptic and kinaesthetic experience in my own body, while I was interacting with it.

5.4 *96 details* – Techno-aesthetics: the web is a place to give

With the frame of Popper's argument that artists who make virtual art pursue a techno-aesthetic commitment, which has the effect of humanizing technologies, I am confident to say that the Mulleras have made an original and significant contribution to the field of practice and theory from where this research undertaking has developed. They assumed a mission of extending possibilities for their departing disciplinary field, which remained determinant to the identity of their web-based creations; they have consistently researched technological potential to create, with new media, micro dance events that encapsulate a major theme – the living picture – and a principal aim: to disseminate the discipline across the network as a medium-specific artwork; to do so they engage conventions from both the live and the digital territories of expression. This, I argue, is a successful migration.

In interview, Didier Mulleras expressed satisfaction with the outcome and outreach achieved with the web-based works; but he was also well aware of the drawbacks, because screen projects in dance, he has observed, are much less valued than stage productions. The institutions were renitent to acknowledge their disciplinary position and often called them multimedia artists - "can we continue to be considered choreographers?" Didier asked; he finds that "the whole system is suspicious about dance artists that move to another medium like the net". Greene remarks a tendency to regard Internet Art as a "marginal practice, which often has an antagonist position to that of the institutional circuit of production, exhibition and trade" (2004, p.11).

I have signposted, in Chapters 1 and 3, concerns about the dissolution of disciplinary characteristics that carry the value of expert skills, which explain the detachment perceived among dance professionals and scholars in relation to dance performance in cyberspace. I have also indicated above that this area is affected by the extrinsic context created by the World Wide Web, which hosts numerous activities like

social networking, commercial and professional exchange, archive and advertisement, political activism, or daily news. Wilson remarks that pop culture dominates discourse in the advertising campaign of new technologies and, "information arts" are seen as derivative from mass media and domestic production (Wilson 2002). For Greene this directly affects Internet art: although well received by critics, artists and viewers who are intersted in its "fresh aesthetic possibilities and contributes to contem art discourse" (2004, p. 12), it is also unsupported by conventional venues and circuits, that criticize the use of commercial tools and do not recognize the emerging work as qualified art.

A critical judgement of *96 details* must therefore consider how the artists have dealt with these issues. The thorough inspection of practice reassures my conclusions in Chapter 4 above: in theory there is no ontological conflict and migration to cyberspace does not require the extinction of dance performance as a cost of innovation. Moreover I have examined the intrinsic qualities of the dance and argued for a coherent result in terms of taking advantage of new technologies and dealing with their limitations. Thus the marginal position this particular practice may occupy in relation to an institutional legitimizing framework is not justified by the work itself. In my argument, we are the ones – practitioners, scholars and commissioners – who are not well equiped to make or see its worth, singularity and exceptional quality.

By centering their enquiry in discovering a process through which dance could be instantiated in cyberspace as a medium-specific artwork, the Mulleras have opened a place for an experience of intimacy, presence, sensuality and play; such experience is grounded in the logics of choreographic thinking and nurtures an affective relationship with the other (embodied by the performer), that softens the screen flat surface and the synthetic material hardware. They comply therefore with Popper's concern about humanization, invading the functional with the subjective or, in Massumi's terms, the abstract rational with the concrete virtual (2002). In doing so, the Mulleras engaged with the Web as "a space for experiencing art – a space with its aesthetic rules, and a privileged place for converting information into imagination" (Popper 2007, p.371).

Net art is, according to Popper, a category of virtual art strongly marked by the issue of social communication providing an unforeseen 'platform' for encounters between the personal and the public. *96 details* pursues this goal with an elementary model of HCI but exceeds the simplicity of such a model, today surpassed by more sophisticated technology available in the market[36]. This deliberate choice corresponds to what Greene sees as a low-fi aesthetics in projects that want to "demistify,

[36] Two of these newer models are the subject of the other two case studies of this research

domesticate and familiarize technologies" (2004, p.200). Didier recalled in the interview that they could indeed have used newer tools, with heavier software and hardware that would have accelerated results; he did not do so intentionally because "I did not want that. I wanted to research with accessible tools".

Decentring access and discourse

Another distinctive aspect of this proposal is that this is a free encounter, which can take place across the globe at any time. Although that is relatively natural in relation to the Internet medium, it deliberately undermines the dominant status of theatrical dance performances, which are valued upon notions of immediacy and evanescence and may be commercialized commodities. Artists like Igloo for example[37], who make new media artworks, are very protective and restrict the availability of films and images online. Didier Mulleras makes a point of the company's radically different approach:

> On stage we are a company with everything in place in terms of economy; our shows are sold and we are a professional company as such, from very early, in the 1980s. But with the Internet it is different; I like to have it as a free thing. In the web our art is free for everybody. This also gave me a different space to create, I could be much more free of all the value that was put in the art as a commodity. I could create an alternative to that economic logic (in interview, 2010).

I would argue that his stressing a position towards the arts market and the institutional framework in this way and his understanding it as a liberating opportunity, is an unusual political gesture within a professional community that normally operates in the opposite direction: artists, and dance artists undoubtedly, have to work hard to make their work economically valued. Institutional legitimization and financial support are crucial and artists heavily depend on them to maintain a professional activity. Didier Mulleras admits that it is very difficult to get funding for net art[38] and on the side of the public, the context of the web sets out a principle of free access, which was at the heart of Tim Berner's Lee proposal (2000). "The web does not bring money, and that is why choreographers don't do that so much" Didier concludes; for him, in addition to the multidisciplinary skills required, "to arrive to a result that is a work of art that is free is not very interesting for most people" (in interview).

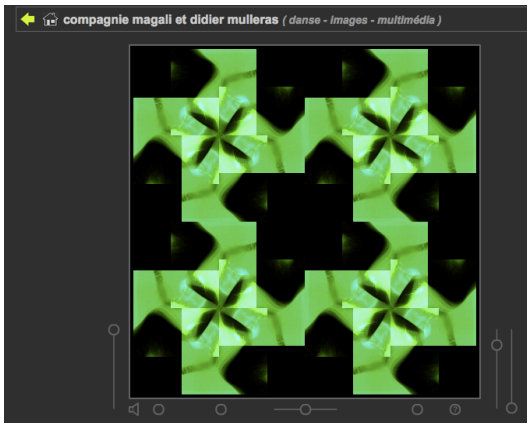
The choreographers invested in a laborious project such as *96 details* and then offered it to the world, because they combine artistic intention with a philosophical

[37] See Chapter 2

[38] They have always used part of the grants awarded for live performances and that is one of the reasons why their web works are associated with live stage versions.

position. In Fildes' vision hyperchoreography reflects ideals of contemporary culture associated with the rejection of hierarchies and decentralizing information. The construction of Fildes' and McPherson's works was framed by the principles that informed the notion of hypertext: namely low cost and accessible technology, experimentalism, multiple views and cross boundary dissemination (Nelson 1987).

In *Hypertext* (1992) Landow recalls how this term has emerged from a technological aspect that determines presentation and organization - different texts, and different media, connected through hyperlinks – but corresponds to a philosphical paradigm developed by post-structuralist theory[39]. He sees critical theory and computing theory converging under a common argument: "We must abandon conceptual systems founded upon ideas of centre, margin, hierarchy, and linearity, and replace them with ones of multilinearity, nodes, links and networks" (p2).



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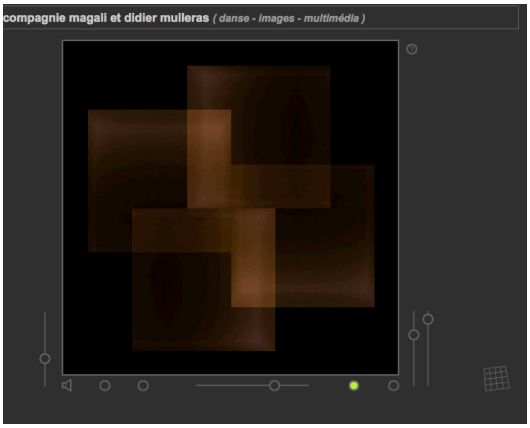

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Figure 5:11 - 96 *details,* user's compositions, screenshots

I have claimed that *96 details* operates within this paradigmatic view in a pragmatic way, which is visible in the manner that pre-existing content was generated and structured, an interactive model was conceived, and user-action was desired and encouraged, enabling a performative aesthetic experience with dance and the human body (fig.5:11). But I also consider, informed by Popper's remark that artists, such as the collective involved in compagnie Mulleras, carry with their own techno-aesthetic signature ideals related to extra-artistic issues that are of major significance to their culture. For example, Popper oberves, they embed these technologies with values of freedom and community, namely by exploring the notion of public art on the Internet, developing open source software and creating platforms for professional networking and audience participation in collective authorship proposals (2007, p.314).

[39] This is an inspiring dialogue between ideas from literary and cultural theory (with Barthes, Derrida and Foucault) and writings from computer theorists (such as Nelson, the hypertext inventor).

Didier Mulleras is not afraid of being copied and is not concerned with property because, he says, “we know, from the beginning, that we are going to give”; in a society where all is sold and has economic value, they maintain a notion of value, investment and return that is not just measured financially: “things come back in a different way, people’s comments, press coverage, people buying our pieces on stage, that is also very important”.

6 Chapter 6 Soi Moi – dance for an I-phone

In this chapter the artwork *Soi Moi (Self as Me)*, made by French company n+n corsino in 2009, becomes a 'case to study' dance performance in cyberspace (fig.6:1). The company has developed a signature-marked work[1] across three decades, with screen surfaces, using video and digital technologies to instantiate dance in other places than the theatre, find new viewpoints for the audience and alternatives to the seated position in front of the proscenium stage.

Figure 6:1 - *Soi Moi*, stone3[2]

Soi Moi is the Corsino's first piece for portable devices and corresponds to Popper's layout of multimedia offline works (2007): presents in a computer device, combines different media and enables user navigation. Multimedia offline works differ from installation and online categories because they are objectified in a device and do not need Internet connection.

In the studies about choreographies involving 3D media, virtual dance is a term commonly used when motion capture technology (Mocap) is employed to migrate dance to cyberspace (instead of 2D video or synthetic generated movement). This process converts samples of real movement, in 3D coordinated computer data; it literally "virtualizes dance" (Boucher 2011, p.10). Writers introduced in Chapter 1 such as deLahunta, Dills, Dixon and Kozel discuss practices that use this technology as virtual dance; however, their examples are stage based dance performances and installations. To the present date and to my

[1] This term is used here in the ways developed by Melrose to discuss expert practices, which I introduced in Chapter 3. See http://www.sfmelrose.org.uk/ [accessed 20th May 2014].
[2] Image from http://www.nncorsino.com/en/creations/moi/8 [accessed throughout the research until July 2015]

knowledge, *Soi Moi* remains unique in the way Mocap is used to make a dance work and in the way the smart phone hosts an artistic transaction.

With the method used for the online dance work (Chapter 5), I am undertaking a detailed examination of constitutive aspects that identify this smart phone-based dance, in order to account for its singularity as an artistic proposal. Such proposal deals with particular disciplinary and technological challenges; and illustrates (or triggers), conceptual debates connected to the experience of cyberculture. The evaluation of this case, as well as its position in relation to other dance practices are also demarked throughout.

I start by introducing the company and their ideas driving a unique approach to virtual dance, acknowledged by international awards, prestigious funding bodies and commissioners. Subsequently *Soi Moi*'s thematic focus, existing content and materials involved are reviewed, in the second section, and confronted with queries about agency and identity in virtual dance; the third section analyses the interactive design, role of the audience and experience enabled by *Soi Moi*, arguing that this is an example of what Shusterman calls the practical branch of Somaesthetics[3]. To conclude I secure the connection with debates about disembodiment and I discuss the work's potentially contentious position regarding the critique of gender representation in cyberculture.

My first contact with the piece was on a video available online[4]; then I experienced it with the I-phone at an exhibition in 2012[5]; and in December 2013 I acquired the app, which runs, since then, in my device. I interviewed the director Norbert Corsino in July 2010 and discussed various aspects of the company's work, some of which specific to *Soi Moi* (see Appendix 2); in addition I consulted press articles, exhibition catalogues, and other studies referring to the company. The Corsino's website - although not adopted as a venue in Auslander's terms (2001) - is a well designed and comprehensive archive with videos, pictures, texts and links to other sources[6].

[3] I will explain how this branch of somaesthetics (Shusterman) can apply to this case in Section 3 of this Chapter
[4] Video at http://www.youtube.com/watch?v=mI0MoIb5CgE [accessed 12 September 2014]
[5] In *Surf et Surface* exhibition at the Centre Des Arts in Enghien-Les-Bains, January/March 2012. http://www.cda95.fr/fr/content/invitation-surf-et-surface-nn-corsino-0 [accessed 25 September 2014]
[6] See a summary of contents in Appendix 2.

6.1 n+n corsino

Nicole and Norbert Corsino are founding members and artistic directors of the company n+n corsino. As the information provided in their website www.nncorsino.com indicates, they trained as dancers and specialized as choreographers, and have collaborated to make joint work for a long time; they are based in Marseille, a large town in the south of France. They have financial support from the local council and from national institutions that have strongly invested in their work[7]. The couple signs the artworks as n+n corsino and gathers a small group of regular collaborators who are specialist practitioners in the areas of dance, music, literature, visual and interactive design; the team size varies with the demands of each project but, on average, the ensemble gathers a team of eight people. Between 2007 and 2009 they were artistic directors of Ars Numerica, an European digital arts centre in France.

The Corsinos have worked with stage live performance during the 1980s, shifted to a screen-dance period in the 1990s, and then entered a new phase, using motion capture technology to create with virtual performers and environments - this has been a core approach for nearly the past fifteen years. In his interview with me Norbert Corsino refers to various projects that mark the influence of different media in their work on a timeline. I have nonetheless focused our discussion on three works that demonstrate, with different modes of presentation, how their distinctive practice innovated with the cinema screen - *Captives 2nd movement* (1999-2000), the installation site - *Seule Avec Loupe* (2006), and the mobile phone's features as a computer device - *Soi Moi* (2009).

In their early productions for stage, Norbert said in the interview, they had already pursued an interdisciplinary concept of performance using video, opera, comedy, literature, music and dance. During the 1980s they focused on film because they wanted to work with the fiction in dance, using a cross-over between a body-based art with narrative and site-specificity**.** Norbert did comment on an early realization in this line of action: "if we wanted to continue with films and choreographic fictions, we could not go back to the stage, we could not continue doing one thing and the other"[8]. Differing from observations from Didier Mulleras[9],

[7] Some funding bodies are identified in the company's biography descriptions of works, Appendix 2
[8] See Appendix 2
[9] In working with digital technology the Mulleras saw in that a possibility to shift between the live and the digital; in their live performances they always mix real dancers with virtual performers and visual effects.

Norbert Corsino considers that very few cases successfully combine screen and live characters in the same piece because, for him, the screen normally steals attention on the live performer.

This company provides us with a strong case where 'virtual' dance in 3D computer graphics has been developed, stretching the limits of technologies, choreography and interactivity[10]; they have traced one way migratory movements from the live to the mediated in several different ways, which are key to the present study focused on the performance of dance in cyberspace. The choreographers present themselves as artist-researchers, being aware of the enquiring and experimental drive that embeds their professional commitment:

> We throw ourselves in spaces that are technological, yes, artistic yes, but are not yet referential, they are fairly unknown, so we are exploring, in the same way as if we were working for a stage production. We do research with our practice; we think of something and we say lets go there because there are not many references for this yet. (Norbert Corsino, interview with Varanda, 2010)

Choreographic Navigations

After moving dance towards the screen, and making various films – the choreographic fictions – the next step was to explore the architectural potential of the screened image. The Corsinos began to work with installation layouts because they ensured audience engagement in event-like situations; thus in *Circumnavigations* (1991-1993) the choreographers presented the images "with structures that could move and be displayed in space", enabling the audience to move around and "choose what they would want to see, for how long"; in this way the three-dimensional installation in space eschewed the flatness of the screen and the choreographers could be near the audience when the transaction was occurring.

The Corsinos started to study motion capture and animation technologies by the mid- 1990s[11]: "we found Mocap a very interesting technology because we could move the dance straight away into the architecture" Norbert explained; 3D composition, he adds, enables "navigation, in spaces and environments that cannot be built/delivered on stage; we can make other universes, and we can insert camera movements, changing points of view in those environments". This is a strong aspect

[10] Probably only paired by the UK group Igloo, directed by Gibson and Martelli who use Mocap and 3d to develop their artistic enquiry informed by a dance perspective (see Chapter 2).
[11] This research, drawing on very expensive technologies, was possible due to a substantial Villa Médicis grant.

of *Captives 2nd Movement* (2000), (fig.2) which is a film that explores the features of virtual navigable space in a way similar to installations (the viewer is given the sense of walking through with the moving POV) and stage performances (when the dance sequences develop in wide spaces and we can perceive the movement's spatial progression and design).

They adopted the term "choreographic navigation" to define their pieces with spaces where audience members can move around and affect the output of the work; *Seule Avec Loupe* (2006) is emblematic of this concept (fig.6:2). Together with the Mocap and 3D relocation process involved, the artists used a sophisticated sound surrounding system, which combined with a wide screen surface composed of three synchronized projections. This apparatus facilitated immersion in the artwork; the position of the visitors was tracked with sensors that translated their action in sound and image reactions such as speed, point of view or aural intensity.

In Chapter 2, I retrieved theoretical positions from Manovich, Dodge and Kitchin, or Dixon, which support considering cyberspace as navigable space; this condition, which Manovich believes to be common to all new media, has been an informative concern of the Corsino's work. The virtual, and the new media, explore indeed a situation that the Corsinos find in dance and consider liberating: "dance is an art without a specific place; it was always hosted in spaces from other artistic disciplines: the opera hosted the ballet for example; and the same happened with the theatre". For Nobert the artists of today should take advantage of this historical 'homelessness' and explore new spaces for dance - because dance, he says: "creates the site at the moment it expresses itself". What is crucial to know, he emphasised, is that each medium has different requirements and relates to specific contexts, eventually demanding specific production conditions and skills, which may not be so easy to acquire, particularly in a discipline that is developed to a significant extent with live and stage-based productions.

Figure 6:2 – ***Captives 2nd Movement*** **and** ***Seule Avec Loupe***[12]

Although a singular case in relation to its peers in both the dance and new media streams of contemporary arts, *Soi Moi* finds a central position in the current study: 1) it is unequivocally an artwork; 2) it required a professionally directed and quite complex process of migration; 3) virtual characters 'perform' an explicit dance activity in virtual places with geometric reference; 4) the work becomes actual with the audience's physical intervention; and finally 5) this intervention generates different tokens of the same type performance. The examination here entailed demonstrates how the artists achieved such results and assesses their efficacy in triggering an experience of dance performance in cyberspace.

Available literature

The Corsinos have edited publications where their work has been discussed. Loupe debates disembodiment in her text "composite bodies" (n+n corsino 1999), referring to discontinuation between body and its image that video and digital technologies enable. The body on screen, Loupe explains, is understood as weightless and dispossessed of energy; the virtual dancer is a hybrid, continuously negotiating between the organic and the representational. For her the Corsinos negotiate the two notions well because they "reconstruct, with the aid of computerized processes, organic elements in their synthetic dancers: they re-establish attributes of support, weight and tension in the screen image" (idem, p.89). Their representations are not simulations but rather – and significantly - they are argued to entail an act of projecting their being as dancers in cyberspace.

In the exhibition catalogue *Topologies de L'instant* (Corsino 2001), Galea reviews the Corsinos shift from stage to other media, exploring multiple points of

[12] Images from http://www.nncorsino.com/en/creations/captives-2nd-mouvement/14 and from http://www.nncorsino.com/en/creations/seule-avec-loup/7

view and connecting the dancer to unconfined and imaginary environments. In this exploration committed to exalt the body's potential, which Galea calls a "poetic approach to multimedia"; she finds that the Corsinos unequivocally manifest a choreographic identity and thus facilitate re-embodiment: "far from abandoning the dancer's bodies, they continuously return to them" (p. 109); rather than creating extraordinary clones, the Corsinos research new possibilities for the moving body; they reorder movement in space and create new topologies in "a work that is both material and dreamlike, a composite fiction, an ephemeral arrangement" (p. 112).

In Corin's volume (1999), the Corsinos state their enquiry about territories and how that calls for crossing different media and envisioning dance as medium open to multiple instantiations. With *Captives (2nd Movement)* they discuss how Mocap influenced their choreographic process.

In *Danse et nouvelles technologies* Jafrré (2007) addresses central issues that arise when dance meets digital technology, weaving topics with practice examples. The Corsinos are recalled once more in a discussion about disembodiment, when the real body transfers to a numerical one: what sort of control does the real dancer have in the virtual performance space? How does technology interpret the data and interfere in the simulation of the dancer? What is the fragmentation required?[13] Jaffré remarks that by moving away from the logics of live performance, the Corsinos have been criticized for lacking the spectacular and entailing an artistic process that is very dependent on technological possibilities (p.114).

The above sources are previous to the emergence of *Soi Moi* and I have only found this work reviewed in the press. These reviews highlight the artists' pioneering approach to digital technology by developing dance for a new concept of presentational space. According to *Le Monde*, *Soi Moi* is a courageous endeavour, anchored in a specialist process, that created a playful and superb work (Boisseau in *Le Monde*, 2009); the cloned dancers bring singularity to the virtual world and enable an intimate dialogue within the user's own reality (Vernay in *Libération*, 2009); in *Paris Art*, it is one of the most interesting apps of the time, which stimulates intuitive and playful navigation (Vilodre in *Paris Art*, 2009); according to *La Provence*, it is not surprising in the career of the artists but it remains innovative and outstanding (Barbier in *La Provence*, 2010).

[13] Jaffré also refers to the artists' use new technologies to create three dimensional sound (p.100), which was the case of the installation *Seule Avec Loup*

These records are useful to the extent that they assert public acknowledgement of the company, their distinctive creative enquiry, and clues for theoretical debates. I have also addressed this work as an original use of Mocap and a tangible interaction to make new media dance[14].

6.2 *Soi Moi – a priori* content: themes, structure and components

This section focuses on the content that is available to engage with the app; the observation of the work's internal functioning is grounded in the parameters identified in Chapter 3. With this method I characterize the constitutive elements of the dance, detect technological determinations, and understand what sort of 'venue' this performance is expected to instantiate. In a similar procedure to that explored in *96 details*, *Soi Moi* is composed of several micro-dances, that can be experienced in random order and to a lesser or greater amount; hence any account of the content has to consider the variations in different sections.

Because Mocap is used to migrate dance to virtual space, several phases occur before publishing the work. A studio is needed to capture the movement, which is then rendered and filled; after that comes design and animation of a character; and finally the performance space is constructed. The interactive features that will be programmed have to be considered from the start.

Although I have maintained a linear process of analysis – who, what, where – Nobert Corsino explained that they went back and forth testing how ideas acquire concrete form. This is not surprising, given the "multi-stranded" nature of the medium of dance (Preston-Dunlop & Sanchez-Colberg 2002) or, as Adshead-Lansdale remarked (1988), the interconnection of elements; but I had to understand interactive features at an earlier stage in order to view the pre-existent content. Those operations in turn, interfered in the readings of that same content.

Knowledge of the complexity of tasks and phases due to the technology involved is important because it correlates to central questions in this thesis: how do the artists deal with constraints and opportunities? How do they transfer to another media territory the methods and conceptual references of the art form? And what are they bringing anew to the field of dance, from which they depart, and the field of new media, where they have settled?

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[14] See papers in (Varanda 2009; Varanda 2013; and Varanda 2014b) and abstracts in Appendix 4.

Thematic concerns

According to the artists *Soi Moi* aimed to stimulate sensorial and body awareness, through transaction with a dance artwork, using the smartphone: the everyday utility for communication[15]. After prolonged experimentation to relocate dancers in virtual spaces (as in *Captives2nd Mouvement)* and in navigable spaces (as with *Seule Avec Loupe)*, with *Soi Moi* the Corsinos transfer the work "from a space where the audience goes, like an installation site or a theatre venue, to a space that is in your own hands" (Norbert in interview, 2010). Transactions between audience and artwork can now occur in the frame of personal life, within private rather than public space, as it was the case in the web-based *96 details*[16].

At a mature stage of their career the choreographers embarked on a techno-artistic test of the features of the I-phone, which was the state of the art communication technology of their time. They designed a piece to explore the interface's interactive possibilities, such as touch, blow or shake. A new topology for dance performance was developed: "a portable installation" as Norbert recalled, where "the body expands the tool and brings poetry to it"[17].

The information provided by the Corsinos[18], tells us that the idea of *Soi Moi* relies on providing an experience to the audience that aims to be different from functional uses of the smartphone, such as calling, web browsing or playing games, and eventually draw attention to the user's own body.

Reengaging with Preston-Dunlop and Sanchez-Colberg's choreological perspective, which locates the work in the dance studies frame**,** I argue that this piece is driven by a "perception-idea" (2002, p.18): the effect on the spectator, the way he or she will relate with the work and therefore engage with the machine, are the pulse of the artistic endeavour. This principle also approximates *Soi Moi* to the enquiries of Shusterman and Schiphorst outlined in Chapter 3; they are lenses from HCI and new media aesthetics, which are suitable to examine the work. This enquiry itself is a task to which I return below; at this point I propose to focus on

[15] The artists usually add a correlated translation as "Self as Me".

[16] This experience in the private is only attainable by the artefacts that are reproducible in a medium substance: books, pictures, sculptures, DVDs or CDs, TV. New media art innovates by enabling a time dimension to the objects that previously were fixed, personalising content to broadcast in the web, and reproduce performance works, not just as documentation but as performances, as we have argued in Chapter 4.

[17] The Corsinos continued from then to explore the portable installation topology with *Bangalore Fictions* (an app for Ipad / 2013); they also tried a public installation version of *Soi Moi*, which I saw at the CDA in Enghiens Les Bains.

[18] Provided on their website, in the course of my interview, and other conversations documented in press articles.

the examination of components and their articulation, keeping in mind that a particular experience was to be offered with the device.

Structure of the work and samples for analysis

Soi Moi is an app[19] for I-phone, which can be downloaded from the Apple iTunes store. As Nicole Corsino has mentioned in interview the app, whichs costs 8€, "is less expensive than a CD or a ticket to the cinema. And it's a piece of art for life"[20].

We open the app, a menu appears, and 18 stone-shaped icons float around on a neutral space where a woman is walking (fig.6:3). 12 stones of the 'menu' have different images because they link to sections of the work. If we touch a stone continuously, it zooms in and loads that section. Since this iconography indicates the 'rooms' inside the 'exhibtion' space, or the 'episodes' that form the 'theatre' piece, I shall use, in adition to section and scene, the term 'stone' to refer to the micro-dances that tapping on a particular stone leads to.

To ensure a systematic approach I have once again mapped and catalogued the existing sections that compose the whole, as I did with *96 details*. This mapping is recorded with an image (fig.6:3) where I linked, to the entrance menu image, separate stills of each micro-dance contained in the stones. I numbered the stones, for the sake of organization, observation and account, but they are actually randomly displayed, without a stable position in the menu and with no indicative order – we can start anywhere and decide where to go next. After close examination I ordered the sections considering traceable affiliations. The sections and their characteristics have been listed according to the elements and interactive features (table1) that accompany this analysis; I chose samples from the 12 stones to discuss particular parameters considering how they were representative of components and interactive possibilities.

[19] App is an abbreviator smartphone applications, with specific requirements to be light, run smooth, and respond to features such as touch and rotate (which computers such as laptops don't have).
[20] Published in Barbier's article, March 2010 in La Provence (see Appendix 2). Translation by the author.

Figure 6:3 – *Soi Moi*, map of sections[21]

[21] Images from Image from http://www.nncorsino.com/en/creations/moi/8 , screenshots from video of the work provided by the company at http://www.youtube.com/watch?v=mI0MoIb5CgE and documentation shots by the researcher.

NR	Menu Icon & Name	Body / Performer/ costume	Movement/ Choreography/ Sound	Space/ Place Venue	POV & screen position	Interactive options
1	Light Bulb **Bulb and flakes**	Woman / Dress1 - grey vest blackshorts	Choreo 1A - Circular harness sequence: Sound: crickets, birds, & voices, surround	Orange backgrnd, bulb lamp + telephones + white snow flakes	1 - Fixed, Front – XLS Vertical frame	1 - Shake the device = A) snow flakes fly or fall in different directions. as we turn device
2	Elephant **Jungle**	Same as 1	Choreo 1B - Circular harness sequence: Sound: forest birds and other animals	Yellow floor & pink background + palm trees + 2 elephants walking + white snow flakes	1 - Fixed, Front – XLS Vertical frame	1 - Shake the device = A) stone 1 + = B) activate sound
3	Yellow leaf **Leaf and Flakes**	Same as 1	Choreo 1C - Circular harness sequence: legs in arabesque Sound: cracking leaves + airplane, surround	Blue abstract, big leave flower on the ceiling + bird flying in the sky + snow flakes	1 - Fixed, Front - XLS Vertical frame	1 - Shake the device = A) stone 1
4	Red ladder **Stairs**	Same as 1	Choreo 2 - Climbing up the stairs Sound :5 - Piano, strings, whispers, birds, pond sounds	Whyte/grey background, floor with shadows of trees + empty staircases	2 –Changeable Moves with user. CU, MS,LS, XLS Vertical frame	2 – Touch and slide = A) camera movement changes POV (angle and shot size)
5	Green leaf **Gingko**	Same as 1	Choreo 3 – hip shakes, swirls up, jump sideways, twists & turns, big steps to walk Sound: = stone 4	Whyte backgrnd, green gingko leaves on the sky + One leave as floor	2 – changeable moves with user = stone 4 XLS Horiz. frame	2 – Touch and slide = stone 4 3 – Blow = lights the scenario, colours the leaves
6	Burgundy pattern **Ripples**	Same as 1	Choreo 4 – torso led, rotations on arms & head, swing legs, large extension Sound: fire cracking + air waves, low	3 images in backgrnd & floor: burgundy pattern square pattern flower pattern	1 – fixed Front XLS Same as stones 1,2,3 Vertical frame	2 – Touch and slide B) trigger sound and water ripples in the floor and background
7	Red Tree **Forest**	Same as 1	Choreo 5 – circular stepping, ronde jambe, jump & turn. Move sideways & frontwards Sound: wind blow, waves, steps, birds	Whyte floor and background tree with red leaves + bubbles	1 – Fixed Front. – MS to XLS Camera mov. Side. Horizontal frame	1 - Shake = C) activate bubbles or 3 - Blow = B) activate soap bubbles
8	Pink sound wave **Pink fall**	Same as 1	Choreo 6A – Falling, legs bent and hanging – 3 times No pre-existing sound	Pink backdrop made of twinkling horizontal lines	1 – Fixed Front – XLS Vertical frame	4 – Speak / sing = External Sound changes blinking of horizontal lines
9	Woman **Purple fall**	Same as 1	Choreo 6B - Falling in spiral movements, legs stretched and joined Sound: 5 – fire cracking + 8 – metallic sound waves, surround	Photo user takes with purple filter + body spiralling traces + pictures dissolves in squares	Front – LS Vertical frame	5 - Take picture = A) appears as backgrnd + 6 – Tilt device = dancer multiplies + 1 - Shake device = D) picture dissolve in squares & strips
10	B&W Sun **Photo Wallpaper**	Same as 1	Choreo 7 – walk, stand, crouch,lean back, look at photos, walk away Sound: - electronic, train, bang, loud	Grey floor with central circular light + Grey backgrnd with flower drawing + image from user	1 – fixed Front XLS Same as stones 1,2,3, 6 Vertical frame	2 – Touch and slide = C) moves background picture sideways + 5 - Take picture = B) appears in back wall
11	Colour square **Live set**	Woman / transparent colour squares	Choreo 8 – fast movement, triplets, pirouettes, arch back & front, move in&out of frame Sound: urban noise, inside a pocket, wind	User's real environment captured as a background with camera	2 - changeable Front MS – she moves on space - we only change POV of the background	7 – 'film' as you like = Insert reality in the dance Ex: tube, garden, street, house, other people
12	B&W square **Music**	Same as 1	Choreo 9 - step, jump, torso, impulses & turns, suspensions, changing directions Sound: choose from your library	Grey floor dissolve in black background	1 - fixed Front - MS	8 – select from library = choose music for the dance from I tunes

Table 1 – *Soi Moi*, catalogue summary of the 12 sections

Body, performer, costumes

Soi Moi is a solo performance piece; the dancer is a slim woman, with black short hair, wearing a white and grey vest top and tight black shorts. This woman is a protagonist performer, who features in all the stone sections, with the same clothing and the same look (fig.6:4). Stone 11 is an exception because the body is semitransparent and has a pixelated treatment, allowing it to juxtapose to the user's real background image.

The visual aspect of the performer is constructed in a character-design software, which imports movement sequences from the files generated with the Mocap system. It is pertinent to address the actual appearance of this performer because physical attributes, gender and costumes are determined by technical and artistic decisions, which inform performative triggers.

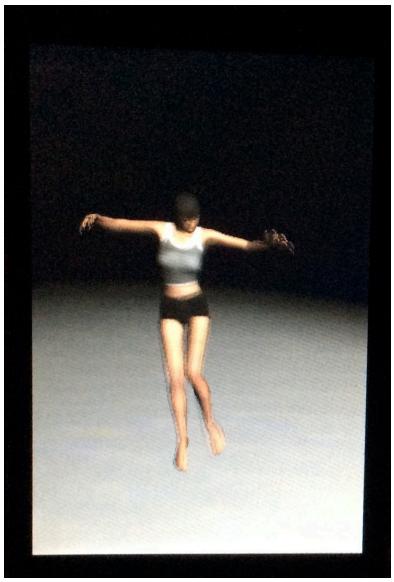

Figure 6:4 – *Soi Moi,* virtual dancer[22]

Although Mocap technology allows customizing the performing character, in *Soi Moi* the body representation is realistic; it appears very 'normal'[23] in terms of what Roland Barthes has called "reality effects" (1986) in symbolic modes, and resembles the original person. For Norbert Corsino "choices of appearance are informed by the purpose, the theme, the idea"; in this work there is no story that justified extraordinary features, so their approach was similar to that explored in previous projects: "the bodies in our work are dressed pretty much in studio and casual slim dance costumes"; because they are "interested in kinetic poetry", Norbert added, rather than narrative, decoration did not inform the body representation.

There are also pragmatic reasons that he adressed: adding a flying dress or long hair for example, requires an extraordinay ammount of post-production work

[22] ©Paula Varanda

[23] Extraordinary, as opposed to normal, can take many forms: the hand drawn figures of Biped, the hybrid robots of the series Transformers and the standard figures from Motion Builder or Maya software range between humans, animals and monsters of all sorts.

to animate those features; it is another part of the job, which needs more staff that they cannot afford and requires heavier files, delaying the system's processing speed, hence affecting its responsive capability and the quality of the movement reproduced. Decisions about gender were also determined by technical restrictions; transferring the captured movement from a female dancer into a male clone had too many complications:

> We thought of doing that as a choice feature: one could choose between the feminine and masculine in relation to one's own gender. But we did not do it because of technological issues; the different bodies required different polygons and this would interfere with the weight of the files and the functioning of the app (Norbert Corsino, interview).

With Mocap the same data movement can be ascribed to multiple characters. Cunnigham, Jones or Igloo[24] have used this procedure – I would argue however that the distributing method enabled by Mocap is closer to choreographic convention in live dance, as a process that multiplies one phrase with a group of performers, rather than to film editing with choreography.

Soi Moi is nonetheless an assumed solo dance. Corsino explained that they had two dancers in the mocap studio – one elevating the other – but "in the end we decided to keep this as a solo performance, which would relate with the single user; so we erased the second person (in the software)". The opportunity to use more dancers was deliberately put aside.

Focusing on a single character is an informed choice to avoid digital representations of moving humans, which are technically demanding. This dance is not made by an awkward puppet but by what as a specialist appears to me to be a convincingly skilful performer, who reinforces the sense of rightness in the work. Solo performance in this case has the potential to refer to the problem of individualism and solitude, which relates to versatile and inexpensive communication media that are increasingly accessible in contemporary society. The woman in *Soi Moi* invites the solo user to what appears to be an intimate exchange that eschews isolation and might be argued to humanize the experience of the materials of computerized devices.

In *96 details* digital video technology enabled a 'mosaic aesthetics' that abstracted the body in moving patterns, and justified a discussion about anonymization of the performer. In *Soi Mo*i, although the performer is created with

[24] See pictures in Chapter 2.

a process of synthesis, this issue is bypassed, in my view, with two major aspects: the performer appears in full size and is always the same. She is a virtual character but resembles a real human that we can become familiar with; the transaction is unequivocally occurring with a women dancer, and the clothing reinforces that.

However, with the performer appearing as a miniature facial expressions are imperceptible; the person in *Soi Moi* remains, therefore, identified in the main by her specific body movement as it happened with *96 details*. Basically the sense of the personal derives from whole body specifics and movement, rather than facial attributes, relating to technological limitations and the 'performance venue' size. But this specific quality of physical identification is already part of the tradition of concert dance, where the spectators keep a distance from the performance area, and the characteristics of the dance medium, where the bodywork itself has a primary role in generating affect and empathy. Even in the transgressive genre of videodance, where the close-up shot is widely used to bring the audience gaze closer to the dancer, choreographers often focus close up shots on body parts other than the face. In contemporary dance, Brannigan remarks, "Expression, feeling, intensity and affect are not qualities that the face (as image) has an a priori claim over; these qualities are shared by the dancing body and its parts" (2009, p.131). Coupled with a formalist frame rather than an expressionist intent, this idea explains, as Dunlop remarks, why many scholars use the word body, rather than performer, to talk about the dancer in the dance**,** despite the anonymizing implication of such a term.

In *Soi Moi* the moving body is central to identify the character and represent the discipline. However, in this case, although the original dancer has no real agency in the work, the virtual performer assumes the position of character, and I would argue that this contributes to the potential affective relation with the work. In the conclusion to this chapter, I proceed to examine the performer's appearance in terms of gender representation.

Movement, Choreography, Sound

With Mocap technology the performer's action is captured through a process of digital sampling[25]. In *Soi Moi* an optical system was used, with LED cameras that track body markers, to import the movement coordinates as digital information in

[25] Presently Life forms is called Dance forms and can import Mocap files. But when Cunningham started to use it (see Schiphorst 1993) the dance was synthesized in the computer and not pre-existing from a real source.

the form of dots; they then render in the computer software as polygons (fig. 6:5)[26]. This data is then treated, filed and used in character design software that gives volume, skin and clothing to an anthropomorphic puppet, which is animated by this movement data.

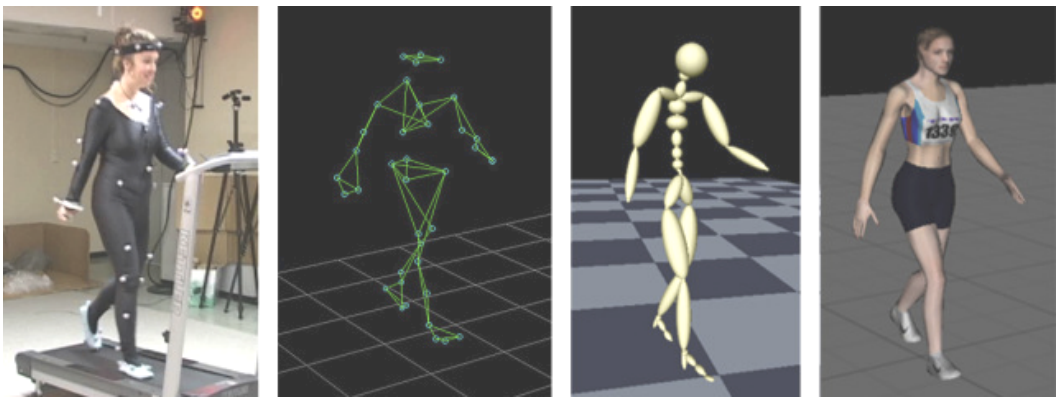

Figure 6:5 – Motion capture import and export process, from human to character[27]

The Corsinos explore the possibilities of this new technology, which involves the Mocap system, the character-building software and Maya 3D for the environment design, but their choreographic approach is quite traditional. In the interview Norbert reports that "first we define the choreographic sequences, we go to a studio as one does for the theatre, and we capture it".

As well as the multiplication from one to many signalled above, Mocap technology allows a new layer of choreographic composition, with the captured data, before exporting to the character (for example the legs of one sequence can mix with the torso of another, or the left arm movement can be copied to the right arm, replacing what was originally danced in the studio)[28]; but in the Corsinos' method "the dance, the performer doing the choreography, stays as it was achieved in the original capturing moment". For these choreographers, Mocap is interesting because the dance signature can be kept intact: "we associate the movement to one body, the body appears by its kinetic presence, and each body has its own signature".

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[26] In Boucher (2011) and in *Swanquake Manual* (deLahunta 2007) this process is technically well described. I have tested myself the whole process with an optical system and Motion Builder software - devising choreography, capturing, assemble, import movement to a character, designing stage, light and perspective - on a Lab at Universidade Lusófona, Lisbon, in June 2010. See a video at http://vimeo.com/13364696 [accessed 27 September 2014].

[27] Image from http://casfxblock2.files.wordpress.com/2011/07/mocap1.jpg [24 August 2014]

[28] Cunningham transferred the Life Forms cut and paste composition method to real dancers and explored this in *Biped;* Ruth Gibson also used this technique in her piece *Swanquake*, see Chapter 2

We recognize a stylistic affiliation with Western contemporary dance, as was the case in the previous case study. Dance vocabularies, which here are author-digested, can be identified and they articulate with pedestrian motion. I associate the predominance of stylized or pedestrian movement with each section's characteristic; in stone 10 for example, the performer walks, stands, crouches and looks around, as if waiting or watching for the user's contribution to the scene: adding a picture of her own environment.

The vocabulary is spatially and rhythmically organized in variable pace and directions, considering each section's place and atmosphere. In stone 6 the rotating torso leads the movement and contaminates the arms and the head, extending the swing to the legs, which perform large steps or sliding *écartés,* grounding the body in second position *endehors*; eventually the movement is again torso-centred and in a standing posture, with hands shaking towards an ending. When touching the screen the person handling the device creates waves in the scenario and low pitch blowing sounds; the dancer seems to resist the unbalancing moving ground in a fall and recovery pattern that follows the waves of the visual set and aural stimulus.

The sequences in *Soi Moi* run only once each time, and are singular to each micro-dance, have a clear beginning and end, and define the duration of the micro event; in the end the system always takes us back to the main menu[29]. However, the dance phrases are very short - in average 1'30'' - as was the case in *96 details*. This avoids the file weight of long sequences, which interfere with the system's responsive capabilities and is a requirement of the medium; they need to "work with a different, more condensed time", Norbert remarks, because screen performance develops faster than live performance. Short duration was also advised by the hosting device - the mobile phone - to secure and hold audience attention.

According to the choreographer many aspects that form *Soi Moi* were found after making the captured sequences; but envisioning and pre-planning were essential to ensure that those sequences were suitable to support the following exploration and feature in the work presented to the audience.

Some demands were set by the device's physical attributes. The vertical frame significantly narrows the performance area; this requires solutions for movement to progress more in depth than in length, and to expand the movement in the vertical plane. During the capture phase the choreographers used a harness

[29] This choreographic logic is opposed to that of the Mulleras piece, which was made of continuous looping, the micro-dances are ever lasting unless we stop them deliberately.

and a supporting performer to elevate the protagonist dancer; these are not visible in the final sequences (the harness did not have markers, so it was never captured, and they erased the second person data). With this technique they achieved the movement shapes and dynamics in stones 1, 2 and 3 (with the harness), and in stones 7, 8 and 9 (with a person).

In stone 2, (elephant icon), two palm trees surround the dancer; she looks around and swings, pushing the feet against the floor, in a circular spatial progression, with legs raising occasionally (fig. 6:6). Sequences 1 and 3 also have a circling motion, but hands shaking (number 1) and *arabesque* stretches (as number 3) are added; these variations connect with sound and visual setting characteristics.

Figure 6:6 – *Soi Moi*, stone 2, screenshot[30]

In stone 8 the dancer falls three times from top to bottom across the screen, with legs bent and swaying (fig.6:7). This was an effect achieved with another person carrying the performer and moving sideways. The choreographers managed to draw the movement through the whole vertical frame in a credible, although poetic way. A similar effect appears in micro-dance 9: here her legs are stretched and closed and when the receiver tilts the device the dancer shifts direction, leaving a trace and drawing curve lines in the screen.

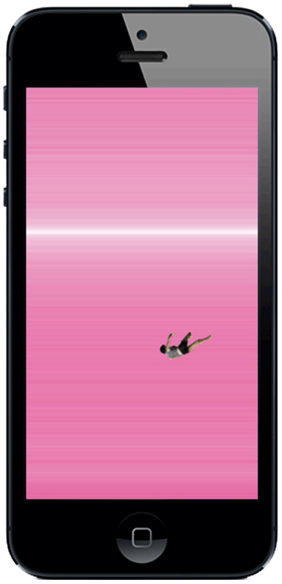

Figure 6:7 – *Soi Moi*, stone 8[31]

[30] From video at http://www.youtube.com/watch?v=mI0MoIb5CgE [accessed until July 2015]
[31] Image from http://www.nncorsino.com/en/creations/moi/8

The optical Mocap system has limitations that affect choreographic decisions, namely to avoid frequent errors of reading and reproducing movement data, which appear, for example, with floor and contact work. The Corsinos have a pragmatic approach to such constraints:

> If Mocap gets data mixed up because of the body going to the ground then we make a choreography that does not use the floor; or else we have to find a way of going to the ground that can be compatible with the system. We decided not to use the floor much in our work, even before we started using Mocap; therefore we did not find ourselves very bothered with that restriction. (Norbert Corsino, interview)

The aural element is present in all sequences of *Soi Moi* and, like in the choreography, the sound score is customized for each section. As an overarching characteristic the composition includes samples of concrete sounds - such as birds tweeting, paper or fire cracking, walking, crickets, or an airplane – and electronic and melodic sounds, with strings and piano timbres.

Because the movement was recorded in silence the choreography was not initially music- determined. However, the micro-audio scores appear to be, as Norbert remarked "done for that particular choreography". The sound emphasizes the environment's atmosphere, sometimes providing suspense, others accentuating the site-specific natural set; music and movement match by association in a way I judge to be efficient. In stone 12, this relationship is literally tested, because the user selects the soundtrack from her or his I-tunes music library. The steps, jumps, twists, flickering pirouettes and brief suspensions appear to fit any choice - the dance goes along well with Vivaldi's concertos, Bob Marley singing or the electronic music of Aphex Twin.

Considering how different the technology involved and process phases are, it is surprising to see that choreographic logic operates, in many aspects, in a similar way to live performance: duration is defined by the artists and the dance starts with, and is delivered by, the performer in full body. *Soi Moi* negotiates technological determinations and aesthetic decisions, as was the case with *96 details*, but its principles and outcome are quite different.

Space, place, venue

Some aspects regarding performance space and venue were already indicated so far; the I-phone is the theatre or the gallery, *Soi Moi* is the artwork, and the menu is the map to access its various parts. Although not ordered, we can see the sections

belonging to a whole dance performance or as rooms of an exhibition of an artist's collection. Both metaphors adjust well, and help understanding how this work 'remediates' as Bolter and Grusin would say, the transaction models of physical conventional venues. The model of the exhibition better accommodates the fragmentation and non-linearity of the work; but the model of theatrical performance resonates with the linearity provided by one single performer, choreographic style and the pervading atmosphere.

The performance space is defined by the vertical frame (in 10 micro-dances), and the horizontal frame (fig.6:8) is only used twice (numbers 5 and 7). This variation profits from the hand-held device: we just need to hold the object, horizontally or vertically, depending on the way each micro-event is planned to display; we cannot do this easily with a TV or screen projection, and that degree of freedom is impossible in the live theatre performance. The vertical frame narrows the space and the choreographers had to develop choreographic solutions: working in depth and height (stones 1, 2, 3 and 6), or with floating sequences in stones 8 and 9. The horizontal frame on the other hand allowed choreographic development in a wider space.

Figure 6:8 – *Soi Moi,* stone 5, screenshot

In *Soi Moi* the visual elements are constructed with computer software and it is inside the virtual environment that several decisions are taken, such as camera movement, lighting and shading[32]. Space becomes a place when signifying or

[32] See the map in figure 6:2 for images and table 1 for descriptions.

abstract elements are considered, such as colour and lightning, which influence the way we sense and interpret the dance, ascribing it a specific location.

Camera movement adds a second choreographic layer – so-called "camera choreography": combining the performer's movement with a moving perspective over the performance space. This procedure operates in stones 4 and 5 and is triggered by the user's finger, sliding over the screen, changing POV and the fixed frame.

The Corsinos have been constructing places for some time with their artworks, establishing a distinctive aesthetics that is continued in this piece: surreal environments involve domestic objects, nature-evocative sets host the dance, and abstract coloured backdrops change with motion. Although space and performer are constructed, Bench's notion of no-place – which I reviewed in Chapter 5 - does not apply very well to this work[33]. In the places created in *Soi Moi* the performer is always represented in full body, as a small figure inside the environment, in most cases of the size of a nail, with the exceptions of stone 12 (not bigger than half a thumb) and stone 11 (the only mid-shot sized piece).

In stone 1 the dancer performs in a room with several telephones bigger than her and in stone 5 she dances on top of a leaf; these are fictional and fantasy sets where she is a miniature person, but the dancer maintains behaviour coherent to real spatial parameters. In the overall piece, except for stones 8 and 9, there are no incredible anti-gravity movements, even though the overarching atmosphere is quite dreamlike. Rather than disrupting the 'perceived realness' or "reality effects" of the place (Barthes 1986), the human behaviour helps our suspension of disbelief with a credible physical action, despite this being an extraordinary movement.

Space occupation in *Soi Moi* operates with common conventions from real physical performance; what the Corsinos bring that is new is the place where the dance occurs. This undertaking resonates with a formative idea that the dance medium does not need to occur in fixed places (see the topic of choreographic navigation**,** above), they can be infinitely invented. Thus *Soi Moi* contributes to the specification of differences between space and place[34].

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[33] Bench's notion of no-place includes various models: the void and abstract space (neutral and meaningless); places turned surreal by juxtaposing dance real sets (a dancer pirouetting over the sea); and the body disrupting natural references such as gravity and scale (for example a person upside down).

[34] Bench differentiates no-place from the non-place/non-lieau, established by Michel de Certeau (1988)

Adshead-Lansdale or Preston-Dunlop and Sanchez-Colberg generally use the term space to mean to the venue where the performance occurs, as well as its visual design, with its minimal but stabilised signifying aspects. The term space is also associated with movement extension and direction: "In moving *through* space the body creates a pattern both over the ground and/or at different times through the air. Dance forms use space in a multitude of ways" (Adshead-Lansdale 1988, p.23). Dourish clarifies the distinction between space and place in relation to interface design, which I find emphasized in the Corsino's treatment of the visual settings:

> "Space" is largely concerned with physical properties (or metaphorical physical properties). It concerns how people and artifacts are configured in a setting; how far apart they are, how they interfere with lines of sight, how actions fall off at a distance, and so on. (…) "place" refers to the way that social understandings convey an appropriate behavioural framing for an environment (Dourish 2001, pp.89–90 quotation marks by the author).

Soi Moi is not related with social networking nor group participation and therefore does not depend on the kind of social agreement regarding behaviour in a place, which is implict in Dourish's statement[35]. However, the visual setting is fundamental to create the performance site, on which the user participates with transformative action; hence the notions of space and place intertwine here with different roles: the visual settings ascribe an everyday place feature to geometric space, naturalistic or surreal, and trigger particular meanings; the dancer moves three dimensionally (an elementary principle to dance) and 'constructs' space in that sense; the frame determinations (vertical or horizontal and small) are the spatial possibilities of the device, understood as a 'venue'.

The only empty stage-like dark space and the only section where we cannot intervene in the environment is stone 12 (the music library dance). In stones 1, 2 and 3 we can spread out snowflakes in the landscapes; in detail 4 and 5 touch enables navigation in the created places: a forest with lathers or a stage of gingko tree leaves.

[35] This social understanding of place is required in online games. In Second Life space design either mirrors real places with social identification: the bar, the beach the restaurant, or displays fictional spaces. Function and behaviour associate with recreated places, where we explore spatial dimension. MUD games, which host cybertheater (see Schrum in Chapter 2), have simpler graphics but also have space organized in places. *Soi Moi* nonetheless uses a hand-held instrument, which has 'behavioural framing' and participants tend to engage on that basis – I will discuss the influence of the device in these terms further bellow, in the topic of interface and interactivity.

The places where this dance happens, constructed by the combination of visual and aural elements, explore two principal ways of creating environments: 1) as a place inhabited by the dancer, which sometimes is entirely finished by the artists and in others integrates the user's surroundings; and 2) as an abstract picture, sensitive to user input, and thus constructed jointly, with soft blinking lines (in the pink surface of stone 8), or with harsher spiral strokes (in the purple background of stone 9). The wider the abstraction the more we tend to play with designing the space; when concrete elements intervene we see the dancer performing in a more or less surreal place.

6.3 *Soi Moi* – transactions between the artwork and the audience

On the grounds of the component analysis entailed and the theoretical debates introduced above, it is clear that *Soi Moi* matches the validation process proposed in Chapter 4, to support the idea that new media artworks may be identified as dance-specific and may be configured as performance. This piece conveys the principles described by Manovich regarding new media; it remediates the constitutive elements of dance, which Adshead-Lansdale, McFee, or Preston-Dunlop and Sanchez Colberg accounted for; and it instantiates in cyberspace with a performative model that the contributions from Auslander, Rubidge and Kozel helped to understand.

The components examination demonstrates that it is hard to separate the pre-existing work from the actually-existing work because the first often cannot resolve without someone actualizing it. Thus characterization requires that we go back and forth within the parameters I established for analysis. I propose at this point to begin to focus on the technical aspects of the work that seem to me to condition the audience's engagement: this should allow us to understand how the artistic options operate performatively; and I proceed to explore the interconnection between those involved (the artists and the audience) in terms of the quality of the experience thereby allowed. We should thereafter be in a position to consider, if evaluation of the work is undertaken, the extent of the makers' achievement with regard to their stated intention to facilitate self/body awareness.

Interface, interactivity, feedback

Whenever Internet connection is available we can download *Soi Moi* from the apple store[36]; after that the app runs offline. Acquire the work is a quick and standard procedure within the medium in use. Instantiation in cyberspace is concretized because virtual characters and spaces were designed for dance performance to occur in the I-phone, adding a new role to the device, as a venue, that welcomes visitors to partake, with decisions, in a new micro-event.

In 2009 *Soi Moi* was designed for the small I-phone (4.90'' height x 2.33'' width), and was later upgraded for the I-pad (9.4'' height x 6.6'' width). The app was also presented in a public exhibition (2011), with the phone controlling the dance viewed in LCD screens[37] (fig.6:9). This analysis was based on the original device, because dimension, verticality and the hand held scale were determinant for decisions about content and interaction; furthermore while the I-phone expands the mobile phone, the I-pad explores the portable computer. We relate differently with each kind of appliance and that interferes in the way we relate with the artwork and engage with what we understand of the artists' intentions.

Figure 6:9 – I-phone, I-pad, and LCD displays

The interactive model explores new possibilities, which the I-phone brought to portable computing, integrating multimodal stimuli; some on the order of sensitive features: such as blowing, shaking, twisting and touching, and others take advantage of media management and connections: using the I-tunes library, using the camera to integrate the real environment, or capturing sound with the built in microphone (see table 1 above in this chapter).

In the opening menu we can play by touching the stones and agitating their floating and rotating speed; turning the phone upside-down will make them seem

[36] Buy the app at https://itunes.apple.com/us/app/soi-moi/id324844286?mt=8 [accessed 12 September 2014]

[37] The exhibition layout was considered after the app's launch, but this idea was not developed for a touring of the work.

to drop to the ceiling and hang above the performer. The menu is so carefully made that I have thought of it as a separate segment,which has a centralizing and functional role. At the end of a section (in average 1'30'') the work automatically returns to this menu.

Apart from the icon-stones, nothing else indicates how the piece works; even the icons are barely illustrative of their content[38]. The work is very dependent on the skills and curiosity of the user who may not discover these functions, particularly when they are not obviously demanded. Does this limit access to sympathetic and experienced users?

After 30 seconds in stone10, the symbol of a camera appears: I press the shooting button and capture my real surroundings; the picture displays in the screen, I confirm if I want to use it, and it shows in the background of the dancing space; here the user's role and the way to accomplish that role are plainly explicit.

In stone 1 however, if not aware that shaking the I-phone makes the flakes fly around (an obvious action in snow-flake decorative objects), it is unlikely that the user understands that something else can happen other than the dance that is already there. Or else one might blow, and touch, and nothing happens.

Soi Moi might become frustrating, or misunderstood as less complex than it is, because its functioning is not evident in most instances; the work engages expertise in a different way than does the web-based *96 details*. It explores the features of the device, but fails in what Normam strongly advised: make the action required clear. At this stage *Soi Moi* relies more on the user's understanding of the device and the interactive modalities, before we might even consider if the speactor's knowledge of contemporary dance is influential. This could be resolved with one of the stones containing informations, or key words suggesting actions while a stone zooms in[39].

In my opinion the artists did not facilitate the interactive relationship they wanted to achieve, and this detail – considering that an enourmous ammount of effort and money were put into the whole project - may jeopardize a successful transaction. Perhaps they avoided explications because they interfere with the poetic immersive quality of *Soi Moi*: text is inexistent, which is characteristic of

[38] I knew what to do in order to watch and interact because I saw the documentary video and Norbert Corsino explained me how the project worked during the interview.
[39] For example *The Truth : The Truth* has a link to a page for instructions, and *96 details* displays the intructions along the work.

works that don't use verbal language[40]; avoiding instructions also distinguishes this app from the functional and the entertainment ones. However, this problem seems to show that the significant decontextualization happening with the dance work has been disregarded.

The Corsinos' previous installations and films showed in public venues with framing professional and artistic contexts. But here the venue is a device, used in many ways and occasions, affar from the artists. The knowledge that people have to manipulate it is impossible to predict, which adds to the unusual possibility of interacting with dance via a smartphone. This 'venue' requires a frame of conventions or instructions, which I would argue are missing here, for the transaction to begin[41].

The feedback of the system however - according to Norman another criterion for assessing HCI design - is fast and clear. We touch and the camera moves, we blow and bubbles appear, while a section loads up we the icon zooms and fades into the scene; the end always comes with a fade out. Such efficiency reveals careful planning to articulate the aesthetic and the technological, which contributes to the work's quality.

The logic of hypermediacy operates in *Soi Moi* because quite specific physical actions are required to initiate the piece and interact with the dancer – we have to be aware of those links between our action and its effects. In Bolter and Gromala's terms this strategy opposes to transparency: the user has to "look *at* the interface or object of design rather than *through* it" (2003, p.56, authors' emphasis). But once the intructions problem is bypassed, and the transaction occurs, I find this work quite immersive, because of the way the elements were chosen and articulated, the reactive quality of the interface and the inclusion of the user's participation.

Control, partaking, authorship

As a result of an intentional techno-aesthetic undertaking *Soi Moi* provides a notable variety of pre-determined actions to the user, whose outcome can be predicted to a certain degree. The cause – external sound in the pink void fall

[40] This applies to photography, painting, sculpture, dance or music.

[41] When I lent my phone to other people who wanted to experience the app after my presentations about the work (as in Mobilities festival and DRHA 2014 conferences, listed in Appendix 4), where they could see the video, I realised that most people needed guidance to navigate and interact with the dancer; for example one person would always try the touch, while other would blow in all sections.

(stone 8) – always has the same effect: triggering and flickering white lines across the screen; but the lines will display differently, depending on voice inflection, pace, pitch and the kind of sound: speaking, singing, stuttering, noise in the environment, or music playing. The I-phone is remarkably versatile, and the artists explored well its possibilities to 'see', 'hear', 'feel' and 'fetch'.

Individual user control is, as in *96 details*, a central operating function in this closed HCI model: neither original authors nor the performer are co-present or connected in real-time; the transaction with the audience is always mediated by, and contained within, the electronic device; at that moment, the only living partaker is the user who actualizes the performance[42].

In the row of interactivity models (Dixon 2007), *Soi Moi* combines navigation – because the spectator, while playing with the content, chooses path and pace of the 'event' (stones 1 to 7) - with participation – because the user's own data is integrated in the work (stones 8 to 12). This sort of participation brings along the collaboration model since the user's information is sometimes a primary material, which merges with the pre-existing primary materials of the artwork.

Although simple tasks provide input, *Soi Moi* instigates the user to contribute aesthetically, choosing background and soundtrack. In stone 12 the dancer's movement and visual scene remain the same, but selecting the tune is determinant to create familiarity with the work and engage in kinaesthetic experience. The picture we take to insert in the background of stone 10 influences, in a similar way, the movement we watch (fig. 6:10). Thus Popper's notion of reciprocal aesthetics is engaged here.

Rubidge's perspective of the user as co-author is enabled in the sense that new things - such as the aesthetic propositions - are brought to the work, abiding with Dixon's principle of collaboration. However, rather than committed to sharing authorship, I argue, this work is focused in user-experience; thus I earlier employed Preston-Dunlop's category of "perception idea", which is here enhanced by the possibility of personalization, triggered by the work's interactive features. The aesthetic contributions in *Soi Moi* have a functional purpose: they give feedback to the somatic engagement with the tool, which happens once the challenge of

[42] In Schechner's identification of different kinds of partakers in the performance (2002), he notes that two of them must be present in the transaction: the performer and the audience. In *Soi Moi* this distinction based on roles collapses because the audience is, to some extent also a performer.

partaking in a dance transaction is accepted. This in turn reflects the artists' concern to promote self-awareness in the contact with the communication tool.

Figure 6:10 – *Soi Moi*, stone 10, user's input[43]

As was the case of the Mulleras' web-based dance, *Soi Moi* instantiates in a private author-audience relationship. Located in the personal smartphone its portability increases the possibility of sharing the experience with others, but again there is no broadcast or recording of the result. On the basis of my experience I find that the artwork can trigger an intense and immersive experience, through play and kinaesthetic empathy, which increases the more we explore and understand the work's potential, but authorship remains with the artists; the work is clearly a signature-marked result of a whole series of expert practice.

The Corsinos provide a highly-structured piece, where the components of the dance medium are evident and articulated; they transfer the medium, with the necessary adaptations, and reconfigure the attributes of liveness and presence with the interactive features; this gives the actualizing and customizing role to the user, as the artists are recorded as desiring and working for, but choreography and the performer's agency never change in more than the user's perception of it. As Norbert Corsino explains, restricting audience control was a deliberate choice:

> I don't consider necessary to change the dance, the choreography. There is poetry on that, on the environment's change. Once you start changing the dance, trying to make the dancer do something different, you start

[43] © Rui Silveira

> interfering with the body. This makes no sense for us (Corsino in interview).

Directing audience participation to the environment that hosts the dance, rather than to choreographic development, reflects, in my view, ethical concerns regarding how one should relate to the other, respecting individual will. Just because this is a dance work**,** Norbert emphasises, "it does not mean that he or she can interact by changing the performer's body"; by maintaining the everyday boundaries of social interaction *Soi Moi* limits the interference of digital technologies, protecting the personal – without which the dancer would be a puppet and the artistic enquiry limited to animation.

Embodiment, affectivity and self-awareness

To instantiate in cyberspace dance performance moves into contexts that are unfamiliar to the discipline and the artworks are unprotected by those institutional frames that regulate live dance, and that inform public conduct. As an I-phone app, *Soi Moi* shares its audience with many other applications. Considering what keeps our attention focused on the work, extending our engagement with it, is a pertinent concern, since other functions, associated with the medium, provide fierce competition. I would argue that in this case, attention is achieved through a-priori distinction (it is creative in terms of both dance and virtual art) and the interactive exchange (reflexive but immersive).

For Bolter and Gromala digital artists are committed to exploring "Digital media that stage experience for us" and the works tend to be reflexive (2003, p.5); Popper associates such demand in virtual art with a techno-aesthetic commitment that humanizes computer technologies. I see *Soi Moi* as a proposal we can simultaneously contemplate and physically experience.

The Corsinos assume disciplinary identity as Norbert pointed out: "if it is dance that we want to work with, it will be dance that we show, represented by a human body". Thus the transaction value relies, among other things, on the kinaesthetic responses to staged dance, which Reason and Reynolds find to be "a key source of pleasure and motivation for many dance spectators" (2010, p.71). The immersive quality of this dance depends, in part, on the association of movement with pleasure, which depends in turn on the way the elements are composed and interconnected; they are referential to reality – a body, a place, a choreography - but

they simultaneously explore dreamlike atmospheres that play with suspension of disbelief.

Soi Moi offers a "window" to this surreal world but in doing so it also presents a "mirror" - a fundamental concept in Bolter and Gromala's case against transparency - because it moves from contemplation to action: it invites the user to be a partaker in the work's aesthetics, manipulate the device and play with the feedback; moreover self-representation is encouraged with images or sounds and therefore the work is user-reflective.

Touch enhances immersion in screen surfaces as Popper remarks: "touching implies intimacy, a controversial notion in a age when direct contact is increasingly replaced by remote control" (2007, p.171). Although *Soi Moi* is multi-sensorial (more than eyes, more than touch), having the dance piece played, and played with, in our hands, approaches art and audience in a particular way; it is quite different from leaving home and going to a public event. The artwork is on my hand; such proximity between subject and object, Auslander remarked, giving the example of TV, is key to the sense of intimacy (1998).

Schiphorst considers both the intimacy of touch and the effect of reflectivity in her HCI research. Interactive design can stimulate the user to pay "attention to the self, and using this sense of self to connect to and exchange information or experiences with another" (Schiphorst & Nack 2006, p.21) and this generates user-attention. Informed by somatic and performance practices, Schiphorst knows that body agency increases self-awareness; thus she says, "the body matters" (2009a, p.229) and it must instruct HCI models for experience, applying Dourish's theory of "embodied interaction" (2001).

Although Schiphorst does not use visual representations her understanding resonates with the Corsinos' enquiry: in exploring interactivity with this device they used the potential of the tool in full; they designed a dance artwork that could stimulate, in the conversation between performer and user, kinaesthetic perception and self-awareness. With unique movement signatures drawing in imaginary places, the artists transform the everyday experience into a poetic one, which is simultaneously immersive and reflective.

The Corsinos develop a pragmatic approach to somaesthetics with *Soi Moi*. They have created a proposal for somatic improvement, which focuses on the quality of experience, to make us feel the body and increase self-awareness; by doing this with a concrete artwork they operate in the branch of "*practical*

somaesthetics", which Shusterman describes as "not a matter of producing texts about the body, not even those offering pragmatic programs of somatic care" but instead a dimension "not of saying but of doing" (2000, p.143). Practical somaesthetics enquires about physical experience and when intersected with artistic aims and HCI, Schiphorst points up, design pursues goals such as providing multisensorial experience, developing the poetics of meaning-making and open interpretation, and connecting touch with care, for the own body, the self, the other (2007).

Equipped with expert dance knowledge and my focus on migration, I find *Soi Moi* appealing for its capacity to provide a contemplative experience of dance. But the tangible experience also contributes to my admiration and affective engagement. I started to use the I-phone with this analysis; I explored the device through the dance work and this made me develop an affective relationship with my phone. The object hangs around in my house and I know that if I launch *Soi Moi,* I can experience the pleasure of kinaesthetic empathy as well as somaesthetic engagement.

As Popper indicated, virtual art practitioners transform the purpose of ubiquitous ICT[44], which assist everyday life and entertainment. *Soi Moi* transcends the utilitarian because the artists have thoughtfully reinstated the human body's protagonist role to generate ephemeral encounters with the imaginary and the unspeakable. In this process of poetic and playful experience, body and mind are intensely present and connected; they contaminate the codes and machines with human affectivity. In the next headlines I give an idea on the sort of events that may happen in this unusual dance performance. These events harmonize the immersive and reflective values of the work and show how the kinetic stimulus of a dancer performing in the intimacy of one's hand, enables somatic experience.

The "concept of liveness", Auslander maintains, "is a moving target whose definition changes over time in relation to technological development" (in Davis 2008, p.110); with interactive new media we can focus on reception to understand what live means:

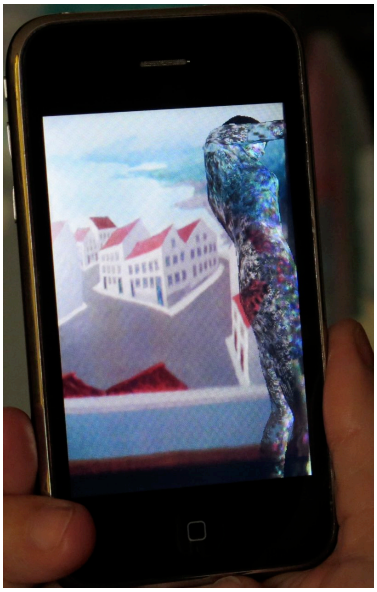
> The emerging definition of liveness may be built primarily around the audience's affective experience. To the extent that websites and other virtual entities respond to us in real time, they *feel* live to us, and this

[44] ICT - information and communication technologies

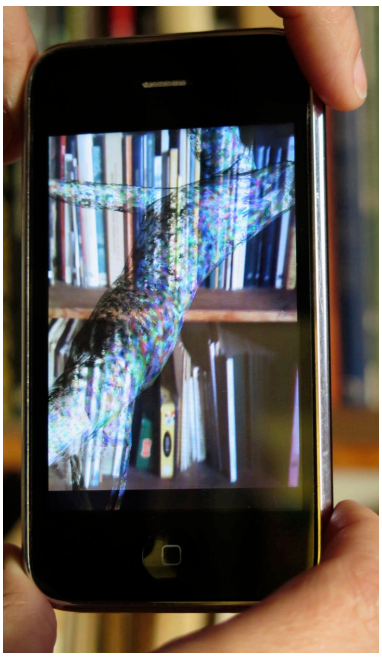
> may be the kind of liveness we now value (Auslander in Davis 2008, p.112).

In agreement with this position, I have elected user experience as a parameter for evaluation, inspecting what sort of engagement the performative triggers secure. Auslander's theory is a powerful tool for my own enquiry because he transfers the notion of venue to cyberspace and the notion of liveness to new media. His theory however, lacks evidence of an engagement with dance practice; therefore my research is committed to showing why discipline-specificity can be important to understanding the processes of artistic invention. What now follows is the account of my experience as a user, which I entailed liberated, for a moment, from the analytic frame that I have been committed to.

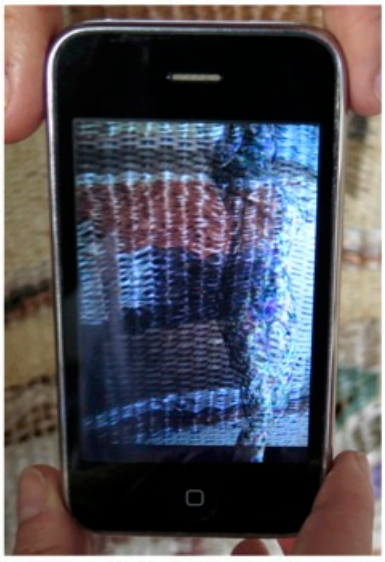
Experience and event: a dance mix with my reality



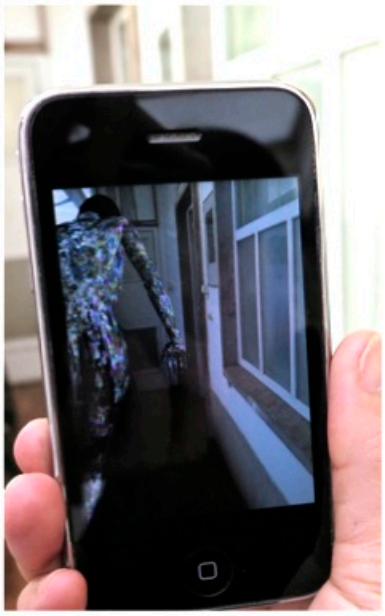
Unlike all other sections, in stone 11 the body representation is semitransparent; the skin is covered with a pixelated patern of white and coloured small squares, as if the performer is wearing a kind of high-tech full body lyotard. A medium shot size frames the performer, from knees to neck, and the movement is fast. She walks into the frame, balances in *retiré*, steps around with triplets, arches back and extends a leg to the front, sliding away. She returns with arms closed to *pirouette*, and stretches before turning and jumping to the back. With this choreographic phrase the dancer appears or disappears in and out of the frame (fig.6:11). The sound is harsh. Noise strokes, somewhere outdoors, brushing into things, paper cracking, high pitch. Maybe it's the sound we hear when the phone is accidentely left on, recording a voice message, swaying inside a pocket, while we walk in the street.



The performer dances over my own real space which is captured by the device's camera and appears in the background. This is incredably surprising and unexpected; it justifies the choice of a body representation that required an enveloping costume, which ensured complete visibility of the embodied choreography but remained transparent to blend with the real surroundings.



The high pitch brushing sound and the fast movement give me the sense that this is an outdoors urban performance section. I have played the section in intimate and quiet places various times; but it works better when I direct the phone to the street that I can see from my office window, and juxtapose the hectic performer with people walking around, cars passing by, trees swinging with the wind, and all sorts of concrete noises randomly mingling.



One day I run the sequence in the underground and it worked wonderfully; that undefined urban place of our daily life, with people moving or standing, talking or listening to music with headphones, some people walking and talking on their mobile phones… it seemed to match so well. As if the dancer is ready to go anywhere we want to take her (since we take our phone everywhere these days), bringing extraordinary behaviour (a contemporary dance fast paced choreography), into the ordinary spaces of our life. As I was in a public space, I tried to be discrete and kept the frame fixed; the tube, the dancer and the other people entered in and out of the framed place designed by the geometric shapes and perspectives or colours of the architecture we were in.

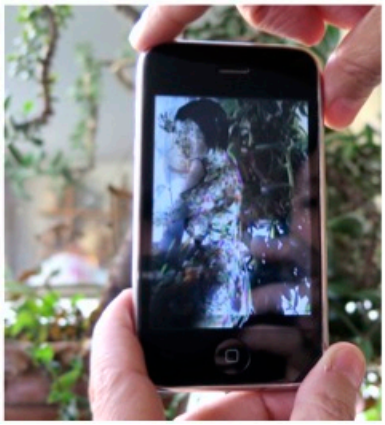


Figure 6:11 – *Soi Moi*, user's experience with stone 11 (this and previous page)

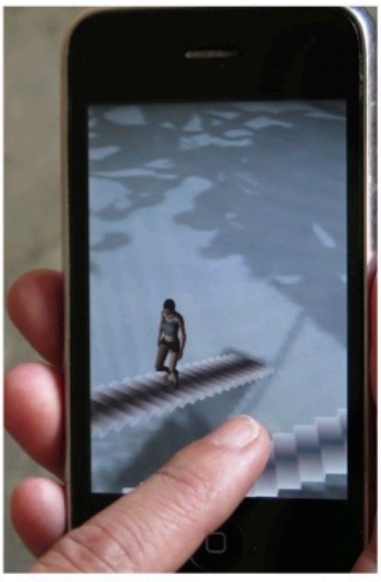
Another time, inside my office, I spin my desk chair around, making a 360° continuous panoramic camera movement, accelerating or slowing down. That day I found another curious and effective way of playing the section. The rotating camera choreography created compensated for the static background of my room, and enabled many elements to become part of this experience, as special features, due to the dancer: an Indian cloth with geometric patterns on the wall, some familly pictures, the coat-hanger with a red jacket, the bookshelves, my laptop on the desk, surrounded with post-its.

The sound of stone 11 was noisy and clattery, standing too much at the foreground, so I turned the phone sound off. From the experience of stone 8 (pink fall) and stone 12 (choose your tune) I learned that we can merge the choreography with different rhythms and atmospheres; so I turned the radio on and the random music playing became the soundtrack of this mixed reality experience.

Experience and event: Ascension

The visual protagonist elements in stone 4 are suspended staircases that occupy the foreground of a surreal place, enveloped by a background of shadows of tree branches and leaves. The performer climbs up the stairs calmly, in a continuum, progressing in the vertical frame space (fig.6:12).

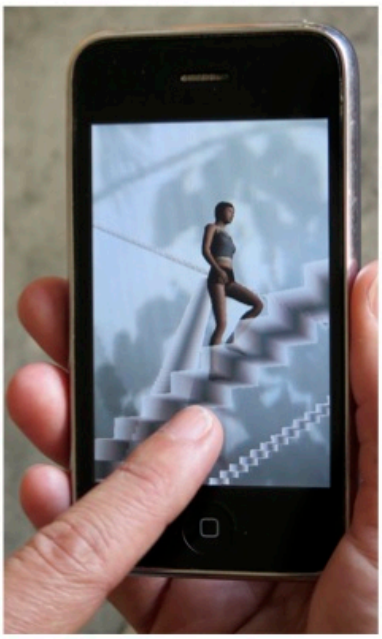
I can touch the screen and change the viewing angle upwards, sideways, inwards and outwards; this camera movement enables me to navigate inside and follow the performer from different perspectives, keeping track of her path, otherwise she would disappear in the frame; she never ceases to walk up the stairs in the place where she is, which is wider than what the frame shows.



The shift of perspective causes the staircases diagonal line shapes to crossover, appear or disappear, become smaller or bigger as I move my finger. This motion of my gaze makes me perceive the scenario differently, and I experience playing with the graphic result of intersecting staircases, performer and background. I can hear musical whispers, birds calling and cheeping, violin strings, a piano melody, airwaves, resonances… the combination of these sounds with the determined

women looking ahead at where she is going, never defined, never arrived at, make this micro-performance intriguing and at the same time uplifting; a sense of infinite ascension.

This stone presents one of the solutions encountered in *Soi Moi* to develop movement progression in vertical space without disrupting gravity rules; it also alerts me that the episodes can be understood as belonging to sequence order. The staircase ascension episode may be seen as a transition to other moments, eventually one that is more stage-like, because it occurs inside a constructed virtual environment, with a fixed frame, like he Japanese winter forest, which we see in stone 7. This could also be the beginning of a journey, or a passage from the surreal, so I considered these sequencing possibilities in the next times I played with *Soi Moi* in my phone.



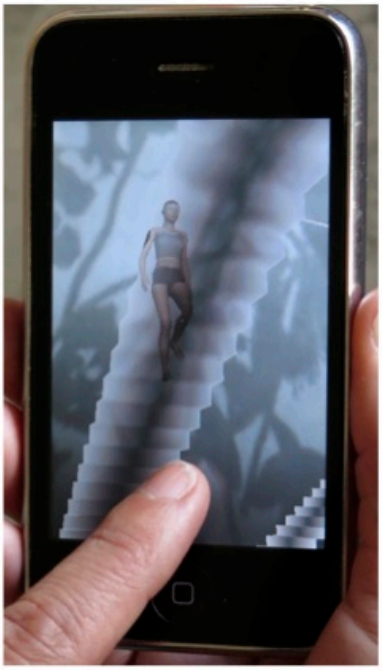


Figure 6:12 – *Soi Moi*, user's experience with stone 4 (this and previous page)[45]

[45] © Rui Silveira (figures 6:11 and 6:12)

6.4 Dance analysis in *Soi Moi* – the virtual body performing gender

The analysis undertaken above supports my claim that the Corsinos essentially achieved to instantiate dance in cyberspace in terms of transfer; choreographic content and body representation are fairly conventional and transformation derives mostly from a notable technological adaptation.

Their venue is the I-phone, their work is multimedia, their stage is changeable and expands to multiple places; but dance is the focal activity that directs the transaction with the audience. Such disciplinary identity informs the exploration of new technologies with expert intuitive knowledge that articulates the dance medium, in its multi-stranded nature, and adapts to new media. According to Bolter and Grusin, this is generally the case in remediation: the new rearranges and reconstitutes previous elements (1999, p.270). Hence *Soi Moi* is well linked to the discipline from which their work develops.

Against disembodiment

In addition to successful migration, *Soi Moi* is also representative of Dixon's argument that performance artists are particularly well-equipped, with their sensual and embodied approach, to change the way we relate with and present ourselves in electronic networks and screen surfaces. These artists, Dixon observes, create virtual bodies that never disrupt with the originals; the embodied visual images maintain their reference to something material, thus he says: Audiences cognitively and empathetically perceive the performing virtual *human* body (as opposed to a computer simulated body) as always already embodied material flesh (2007 p.215, author's emphasis).

In the subject of disembodiment and the primacy of vision - which Hansen pins down as a central concern in new media theory (2004) - the Corsinos' practical somaesthetics counterweighs associations of the digital with the artificial, or fears of the body evaporating in the network of data, screen surfaces and virtual reality. As Dixon remarks, "What possible use is disembodiment to a performer, or the very idea of a mind and body split?" (2007, p.215). In my perception these are mistaken assumptions, which inhibit further and necessary engagement in the field of dance.

On a larger perspective, such efforts connect with an important agenda for Posthumanism, which Hayles defends, that we must avoid that the illuminist body/mind split returns with cybernetic discourse, we must support approaches that reengage with the flesh (1999, p.5).

Intertextual reading

In Chapter 3 I introduced Thomas' method to cross the intrinsic qualities of the work – its internal functioning – with extrinsic aspects related with the social context within which the artwork is delivered. The intrinsic and the extrinsic analysis can stand in tension with each other, Thomas warns us, because they confront intentionality with the spectator's interpretation. Such tension may intensify when critical perspectives drive interpretation, as Adshead-Lansdale pursued with intertextuality (1999; 2008) and Dance Studies increasingly adopted. Franco and Nordera signpost this shift in dance research; linking to Cultural Studies became more fashionable than focusing on aesthetic and historical accounts (2007, p.2).

Soi Moi reinstates the body in cyberspace and promotes embodied interaction, hence standing as a case against disembodiment; this is a feature that represents a remarkable techno-aesthetic commitment, in Popper's terms. However, my position as an expert dance spectator advises me to inspect more closely how this virtual body performs gender and discuss why that performance may appear problematic, particularly considering that the work is delivered as an interactive I-phone app.

Performed gender

In a critical approach to embodiment in cyberculture Anne Balsamo[46] questions the 'worlds' recreated in virtual reality and the cultural narratives they reproduce. Although digital technology enables character transformation, representation in virtual environments tends to follow "very traditional gender and race markers of beauty, strength and sexuality" (Balsamo in Bell & Kennedy 2000, p.496). Balsamo points out that programmers and writers are predominantly male and white; therefore, the virtual body, which "has been transformed into the very medium of

[46] For a comprehensive analysis on the perpetuation of traditional gendered values on women in high-tech media see the author's book *Technologies of the gendered body: reading cyborg women* (Balsamo 1996).

cultural expression itself" (p.497), is a site for encryption that perpetuates traditional heterosexual gender identities. Balsamo advises critical inspection of virtual reality artefacts because, rather than counter-culture, these technological constructions "primarily tell old stories – stories that reproduce, in high tech guise, traditional narratives about the gendered, race-marked body" (p.498).

Reviewed with such remarks in mind**,** the female dancer in *Soi Moi* indeed mirrors class, race, and gender stereotypes from Western mainstream culture narratives, perpetuated and disseminated world-wide in media advertisement and entertainment - namely within the game industry. There are technical and aesthetic reasons grounded in the intentions and creative process of the artists, as I have observed above, namely the issue of transposing the female movement to a male character sqeleton; but the choice of an elegant, delicate and semi-naked female, as protagonist for a contemporary dance in the I-phone, can also be the object of critique based on the interpretation of thematic triggers.

I am cautious with this reading because I know this character results from self-representation: Nicole Corsino and the original dancers are all slim, white, good looking and gracious women. In their real life they are French dance professionals, well educated and modern; being partially dressed in public is normal, it is symbolic of free will and emancipation[47]. Furthermore, exposing the body in contemporary dance is standard practice[48]; skin contact and body fitness are part of being a dancer. The originals of this virtual performer are women who are not used to stress a negative value on their nakedness and sensuality.

Soi Moi is nonetheless ambiguous in its representation of emancipation. When Boisseau enthusiastically refers to the performer as "a new heroine" [49], I realise that she can be associated with contemporary super woman stereotypes like the one embodied in the famous game character Lara Croft[50]. However, the dancer in *Soi Moi* is actually gracious and docile; her behaviour is clearly demarcated from the dominant codes of eroticism and militarism as symbolic of feminine power in contemporary culture.

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[47] The music and game industry have explored massively the eroticism of the female gender, which pressures the social image of women in Western culture; but I refer to freedom thinking of the repression over women's body expression, exploited in Catholicism and Islamism, which are not far away in time or in geography.

[48] Nudity is recurrent in European contemporary dance, and the Corsinos have worked with nudes in the following piece, for LCD screen, *Muets* (2011).

[49] See headline in appendix 2 with press article from 2009.

[50] See Lara croft in http://en.wikipedia.org/wiki/Tomb_Raider_%281996_video_game%29 [accessed 21 September 2014]

Gentleness and beauty, as well as skin and nature, are performative triggers embedded in *Soi Moi* that encourage an alternative atmosphere to the adrenaline of everyday routines and conflicts. The stereotype is relocated in another place, where the women can take the war boots off, drop the guns down, and strip the defensive. But she does so to assume, in that place, a vulnerable position. This is firstly because the real performer has no agency (hence, unlike Kozel in *Telematic Dreaming*, reaction is impossible)[51] and secondly because the virtual performer will be 'touched' by the unknown and unpredictable users that buy the app; furthermore, they control the gaze upon her by changing camera perspective.

In stone 7 she starts close to the front frame; to intervene we must literally blow on the screen to activate soap bubbles that float around, we blow on her body swirling and framed from knees to waist… we blow on her legs and crouch (fig. 6:13). How relevant is this choice of user action, to evaluation of the work? Whereas I stressed above an ethical value in the Corsinos' will to avoid a puppeteer-to-puppet power position between the audience and the virtual dancer, here we can identify a potential problem, which indicates that this contemporary artwork develops in fact within the frame of mainstream conventions.

Figure 6:13 – *Soi Moi*, stone 7, screenshot[52]

In their choices, which I would argue are more intuitive than deliberate (hence possibly avoid contamination by their stated ethical position), the Corsinos disregarded, in my view, the complex cultural context and predominant values of the territory they migrated to. In the most general of terms, dance as a discipline lacks the means to enable viewers to zoom in on a female performer's upper legs. As is generally the case for makers of new work, they focused on exploring

[51] Kozel gives a compelling account and analysis of her experience in Sermon's installation, drawing on the political implications of having a performer interacting in real time with an anonymous audience (Kozel 1998).

[52] From the Corsinos' video at http://www.youtube.com/watch?v=mI0MoIb5CgE

"technicity" and production values – for which I have high regard - while possibly ignoring mutually-exclusive but co-existing thematic triggers.

On a stage live performance this way of embodying gender might not trigger such a critical interpretation; autonomous agency and the theatre's actual physical distance and culturally layed boundaries protect the dancer. In *Seule Avec Loupe* (2009) the protagonist, a woman with similar looks, is nonetheless empowered by the full-size wide screen installation; moreover, to interact the visitors move around and are exposed to others' gaze in the public space[53]. In the I-phone app the embodiment of gender is contentious; the makers overlook ambiguities that an expert spectator will identify: as Balsamo tracked in VR worlds, they reproduce older narratives and perpetuate a ruling male gaze, which Laura Mulvey has thoroughly theorized in relation to cinema and other media production modes[54].

Back in techno-aesthetics

Having identified a central ambiguity to *Soi Moi* through the application of the bones of a feminist framework, I return to the purpose that drives the analytical mission of my thesis: addressing artworks that fit in my hexagonal frame of criteria (Chapter 1) in order to a) characterize and contextualize existing practice, b) understand how dance migrates to cyberspace and c) develop the pragmatic goal of encouraging further research and development.

Soi Moi is technologically remarkable, discipline-specific, certainly unique, and exemplary in many aspects. As a choreographer and researcher I am compelled by the complex poetics of the work and I find affinities with that dancer, empathizing with her and sensing a pleasurable somatic engagement. With the app I built an affective relationship with the device, and I return to it often, even though I no longer need to do so for the purpose of this research. Thus I feel the artwork is relevant to support Kozel's perspective about dance in virtual environments:

> If dance is able to play a role in the future development of VR technology, we could end up with radical new directions for materiality within virtuality, as well as the basis for a poetics of virtuality that centres on the dancing body (Kozel 2007, p.103)

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[53] In *Swanquake* by Igloo (see Chapter 2) the main character is also a white, young and well fit woman, but she is dressed with casual street-wear and we interact with a joystick to navigate inside the virtual environment.

[54] For a theory about the male gaze see, for example, *Visual and Other pleasures* (Mulvey 2009).

My attraction also derives from my sympathetic and empathetic position with the practitioner's perspective, emphasizing achievement on the process of migration and the playful and reflective experience of the work. Although arguably biased, I have adopted a reflexive research position, from the outset, arguing that this would enable me to better understand the practices involved.

However, once a gender-based reading appeared, from a 'voice' located between triggers, and sensed to be 'in the work', I have acknowledged the implications of this finding; after all, my research is committed to testing a cross-disciplinary model of analysis, for dance practices that cross over physical and new media territories. Furthermore, my argument for further analysis is supported by my belief that contributions can be made for Cultural Studies and Critical Theory.

In fact the debate about embodiment and disembodiment, although still pertinent, is in 2015 quite a digested issue, as this research actually demonstrates. On the other hand gender performance, particularly in representations of the feminine body in virtual reality, is still a contentious subject. It is one that requires more investigation since it strongly affects young girls who spend a big part of their lives in that reality[55]. Gender analysis is therefore a place for new media dance to intervene, pursuing a critical techno-aesthetic commitment.

[55] This is an area explored by Ghislaine Boddington from Body-Data-Space namely with her engagement in projects such as the conference "Women Shift Digital" in London 2013 (http://www.bodydataspace.net/projects/women-shift-digital-conference/ [accessed May 2014]) and the educational workshops in Liverpool related with the work by Magruder *Visions of Our Communal Dreams* in 2012 http://www.robotsandavatars.net/exhibition/jurys_selection/commissions/visionsofourcommunaldreams/. [accessed May 2014] .

7 Chapter 7 - *Me and My Shadow* – Interactive Installation to dance in cyberspace

This chapter focuses on a new media installation that invites visitors to experience telepresence and interact with other participants in cyberspace. Telepresence is understood here as "the connection of remote bodies, real-time, to each other within remote performance or installation spaces" (Boddington 2012, p.81); such connection may transmit to private and public locations[1].

Figure 7:1 - virtual space in *Me and My Shadow*[2]

I want to preface this case-study with a note concerning the relationship between this 'dance' event and the subjects of the previous two case studies. *Me and My Shadow* (fig. 7:1) is a project that escapes single disciplinary categorization, the leading artist is not a choreographer and the only performers are the visitors to the installation. I analyze the work, nonetheless, within a dance research context because the moving body, central to the medium in the enquiry I developed in earlier chapters, operates again as an essential source to activate the system, reflect the self and to communicate with the other; furthermore, dancing had a principal role in the design of the work and expert dancers were vital in these preparations.

The previous collaborations that Joseph Hyde, the leading artist, has maintained with dance artists and with Body>Data>Space (BDS) - the group producing this project - were key to identification of the eligibility of this case study. Ghislaine Boddington,

[1] Telepresence, like many other terms used in this thesis, can mean different things according to the technologies used, the purpose, or the disciplinary perspective from which the term being employed, and I will develop the contingency of the term in section 4 of this chapter. In the dance performance millieu the understanding of the term has been extended with examples of practice-based research by several writers (such as Popat 2006; Kozel 2007; and Birringer 2008).

[2] Image from https://madeshadow.wordpress.com/ [accessed throughout the research until July 2015].

director of BDS, has commissioned many projects and events gathering artists and technologists in creative research to connect performance, interactivity and telepresence.

Popper's category of interactive digital installations applies effectively here; body engagement in this sort of layout, he emphasises, is fundamental for immersive contact with electronic displays and their content (2007). This layout is well represented in studies about dance and digital performance, reviewed in Chapter 2, and as I outlined there user experience and participation are the focus of works that move away from the theatre stage.

I propose to start by introducing the project and its key participants including background ideas and projects that informed process and objectives. Thematic focus, structure of the work, and pre-existing materials are the content of the second section, where I address issues about anonymization, agency and place. I discuss in a third section the interactive design, the role of the visitor and the experience enabled, considering aspects that contribute to an immersive and reflective transaction. To conclude I will draw on the issues of self-remediation and social interaction, pointing out the interest of this case to critical debates in cyberculture.

My first contact with *Me and My Shadow* was in July 2011. Boddington told me, at an informal meeting, that this project was quite new research because Hyde was constructing a virtual environment for the visitors to converge in *while dancing*. Such a possibility connected well with my concerns and the project sounded quite singular; to my knowledge most installations relied on closed feedback, between visitors and multimedia, and artists generally used telepresence for theatrical performance models, sharing the work with the audience in a physical venue[3]. I followed *Me and My Shadow* along 2012 through the process blog and, after the premiere, I accompanied the live online stream[4]. In June I visited the installation in London, and experienced being part of the work myself.

In August 2013 I conducted the interviews to discuss conceptual, technical and aesthetic issues, and complemented this material with press reviews, programme notes and texts about BDS's investigations in telepresence. The process blog - madeshadow.wordpress.com - is a comprehensive archive with videos, pictures and diaries, which is supported by information from the websites of the partners involved.

[3] As in the works of Company in Space with choreographer Helen Sky (see Chapter 2).
[4] The Centre des Arts no longer has this link active, a recording of the streaming can be watched in Hyde's blog at https://madeshadow.wordpress.com/live-stream/ [accessed 11 December].

As in Chapters 5 and 6 above, this chapter is also associated to an appendix (number 3) where the interview transcript, the summarized content of reference websites and copies of the press articles are provided[5].

7.1 Joseph Hyde and Ghislaine Boddington

Joseph Hyde (UK) trained as a musician and developed much of his career as a composer, either in his own projects or, on many other occasions, in collaborative projects, thus intersecting regularly with other fields of practice-based knowledge. On his webpage www.josephhyde.co.uk he states that "sound is at the core of pretty much everything I do", but this work extends to video projects, live electronics, installations and dance projects. These multiple approaches match his long-term interest in exploring what he calls 'visual music'. Hyde's collaboration with Boddington started in 1999, at Koerper-Technik, an international workshop she organized in Berlin; Hyde then became an associate artist of BDS in 2005[6].

Body>Data>Space was formed after Shinkansen, which Boddington directed for 15 years as a "sound and movement research unit exploring the new digital age" (on the current BDS website - www.bodydataspace.net). With BDS Boddington opened up her research in body responsive technologies, audience engagement and telepresence[7] to a wider spectrum of the population and linked up with the creative industries sector, moving further out of the arts sector where she developed Shinkansen's projects.

Boddington has commissioned a wide range of international projects with leading practitioners and scholars, foregrounding interdisciplinary collaboration across Europe, Asia and the US. Such initiatives have pursued enquiries into the relationship between the performing arts, particularly music and dance, and digital installations, wearable technologies and self and embodied representations in virtual worlds. Her research has been widely documented and disseminated on a range of different websites.

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[5] See Appendix 3 for a summary of contents of the websites and a section with the process blog texts.

[6] Both BDS and Hyde are financially supported by prestigious organizations in the UK and abroad. BDS mobilizes partners around the world and attracts funding from various institutions, charities and international organizations (such as the Arts Council, NESTA, the European Commission, BBC and several universities). These connections reveal the professional profile of the organization, and the vocation to work at the intersection between artistic practices with the information society and consolidate international networks for this research to develop in a collaborative environment. As an individual artist-researcher Hyde has a similar profile and several times won awards for his groundbreaking and interdisciplinary work with electronic media.

[7] Boddington reviews her work with telepresence in the article "Collective Collaborations through Telematics" (in Staines 2010).

Full body engagement in Interactivity and Telepresence

Hyde in our interview has reported that he had not seen a straightforward connection with his earlier work at the start of *Me and My Shadow*; it was only later he found the roots in earlier projects, as he pointed out in the interview. *Periphery* (2000) was also an interactive installation in a public space and designed for a non-specialist audience: "a hall of mirrors, that give the sense of infinite space" that had video cameras recording the visitors' activity and projectors playing back those images and sounds, sometimes with a gap of two weeks (fig. 7:2). The idea was to explore "issues of representation, identity, observation, memory and otherness"[8]; this theme Hyde concluded in retrospect connected with what he later did in *Me and My Shadow* where "the idea that we could have the traces of the past mixed with our real presence in the present".

CellBytes (2000-2001), however, was a workshop model project organized by Shinkansen that brought together artists and technologists with dance performers. The team set up triggering/sensing environments in different sites and studied how the dance performers could interact with visual and aural content between sites, using telepresence amidst audio-visual materials; in this case the final result was shared in a single performance event. For Hyde, despite its innovative profile, Cellbytes was a straightforward telepresence model, where different sites connect through video channels; he also reported in our interview that he had meanwhile lost interest in this model because it became regular use in everyday life – as in Skype meetings – and because people are constrained by the fixed position of a camera in each physical space, which replicates in the virtual space of the screen. With *Me and My Shadow,* Hyde regained interest in exploring the concepts of interactivity and telepresence because "adding the motion capture and the Kinect, *that* appeared to add a whole new thing".

Boddington pioneered some of the existing practice-based research in full-body telepresence and on BDS' website she states her interest in promoting "the use of the entire body as an interaction canvas". In the frame of the European-scale project Post Me_New ID[9], the creative team devised *Dare We Do It Real Time,* a mixed-reality improvisation performance, with live and synthetic dancers that interacted between

[8] As indicated in the synopsis about *Periphery* at the website (see Appendix 3).

[9] Post Me_New ID – The post human condition of modern Europeans (Stular & Fujihata 2009) involved a creative research process, the presentation of a performance and installation, and a public forum on the subjects of networked creations, multi-identities and future visions. The project is documented in the referenced publication, which gathers contributions by several scholars. Dixon discussed digital doubles and the hybrid self that inhabits performance and virtual environments; Sharir made a case for the poetics of interactivity between virtual and real bodies and the identities performed in such exchanges; and Popat and Helen Sky entailed a conversation about perception with distributed senses and the role played by motion capture to facilitate a mediated relationship with the world and the self.

themselves and with visual and aural input from sources located in distance sites (also in fig.7:2 below).

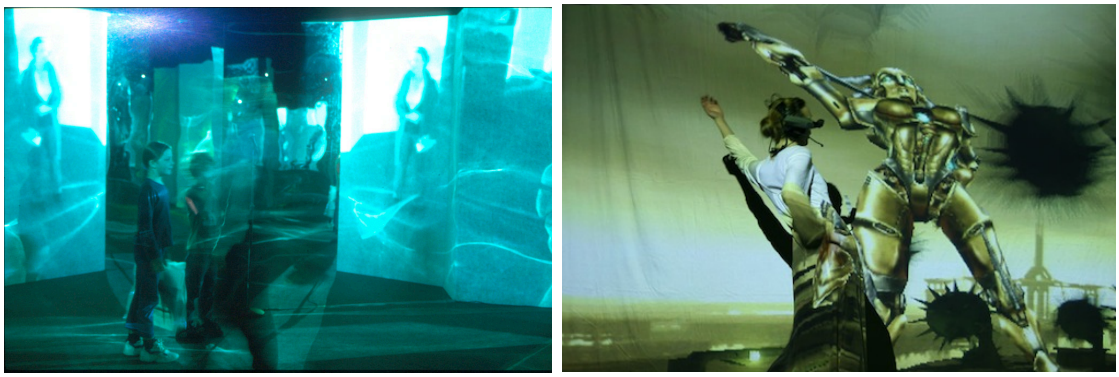

Figure 7:2 – *Periphery* and *Post Me_New ID*[10]

Boddington, emphasized in our interview (August 2013) that a crucial aspect to develop within the frame of digital mobility is to involve "the body of the person, the dancer or the user". BDS she reported, has been looking for an intersection of the tools for representation and communication, as well as the concepts around digital mobility, with characteristics inherent to physical mobility - i.e. full body engagement and 'body language'. Focusing on the public user, rather than confining research on the professional dance community, became a priority for BDS:

> We wanted to get that experience much further, make it public, so a much wider amount of people could become aware of what that means: to be digitally mobile while still preserving that physical self. (Boddington in interview)

The theoretical debates that take place between Manovich, Dixon, or Bolter and Gromala (discussed in Chapter 2) indicate that different conceptualizations of interactivity co-exist and translate in actual practices, which bring with them different methods, interfaces and effects. In this constellation telepresence brings questions about self-representation in cyberspace and mediated communication. By placing the human body at the centre of such engagement *Me and My Shadow* connects with enquiries that are of interest to dance practitioners and scholars.

Available literature

Press coverage of *Me and My Shadow* was intense but the documents are mainly advertising and descriptive[11]. Considering the originality of the proposal and the team,

[10] Images from http://www.josephhyde.co.uk/wp-content/gallery/periphery/wshed33.jpg and from http://t-m-a.de/wordpress/wp-content/uploads/2008/10/post-me-1.jpg [downloaded September 2014]

partners and venues involved, it was disappointing to verify that the work did not attract more specialist reviews. As I have noted above, however, the work is difficult to frame in a particular field, artistic or academic - a disadvantage of the hybrid arts; it emerges from a gathered-for-the-occasion ensemble - a counterpart of collaborative projects; it was short-lived and depended on physical sites to become public (effects of the ephemeral and installation configuration); and it happened not long ago. Although 'digital art' is a useful umbrella term, the link with dance is unusual[12] and this work was led by a musician interested in sound architecture. Because it was made for anonymous participants, the piece does not capitalize on expert performers. Moreover, an installation that enables an international exchange with telepresence may not sound exceptional when advertised. These aspects probably relate to the absence of texts generated by critics (during the exhibition) or other expert spectators (later published in journals); discussion of the implications and quality of this proposal is still due.

In the interview Hyde recalled that people in the funding bodies were also sceptical: "they didn't really seem to understand the value of telepresence in its own"; he agrees that on paper the idea might not be very convincing: "being able to communicate or dance with someone at the other end of the world is interesting in some ways, and in others, it is not".

Newells in *Art Selector* (UK) accounts for a rewarding contact that triggered feelings of "floating through a busy square, catching glimpses of other people as you pass by". For her the piece transmitted a sense of materiality and encouraged playful interaction, with the participant "affecting the space" and "effectively creating a live art work". She found it a good project to inspire future spatial practice and discuss the pervasive computing that inhabits our environment. Bosco and Caldana from *El País* (Spain), highlight the innovation of using the kinect to create a participative performance, which plays with the dynamics of remote social interaction without verbal communication and takes advantage of corporeal expression. Jason Wills in *Regards Sur Le Numérique* (France), reports from the French portal a unique project that questions the frontier between the real and the virtual. He finds particular interest in the ability to establish gestural dialogue between the four sites, the meeting on a common

[11] This is also provided in Appendix 3, with extracts and the outreach list provided by BDS

[12] With this research I went to various performances, exhibitions, festivals and conferences, with the radar wide open to track signals of these practices and they are in general associated with logics from visual arts, performance art and cinema or literature. Also with my literature review I can say that the practices that relate with dance are located in a small professional and international community. Because the predominant digital art work is rarely connected with dance, specialist reviewers are not well equipped to see the value of one or the other fields as they stand separate still.

virtual space, and that instead of constructed avatars the visitors are represented by their own bodies.

A booklet published by MADE, the commissioning network (Baudelot 2012), presents *Me and My Shadow* as a case that resonates principles followed in the making of collaborative 3D virtual worlds; but for the organizers, it is "radically different in terms of process and purpose of the interaction" because rather than surfing in alternative worlds and adopting other identities, the users "create reflections of themselves in a virtual space that acts as a temporal, geographic and poetic extension of their material reality" (p.23). The MADE partners have valued the transformation of a consumer good into an instrument that facilitates unexplored dimensions of a "digital society" (p.33). They locate *Me and My Shadow* in a group of artistic practices that have a central position in "the civilisational revolution that we are presently undergoing" (p.32); it signals the era of a new created space, which people are adapting to, where real and virtual unite and the interaction between the arts and the public is reappraised.

Boddington's previous enquiry into telepresence is published in several sources[13]. The blending between the physical and the virtual developing with the World Wide Web, is a sign for her that "hyper existence is here" (2007, p.89) and such existence demands further research on "tele-intuition" (ibid), which helps orientation in the networked world. Telematics, being in her view "a full bodied, online, gestural interface, which extends our physical world, utilising the virtual to connect the local to the local" (Boddington in Staines 2010, p.27), should empower the individual user by enabling voluntary initiative in virtual environments; she sees this as a way of opposing the ethics of surveillance cameras, by stimulating self-expression and active interaction with free body flow (instead of wired control), and dissolving physical boundaries of geographic distance, which she finds crucial for collaborative interchange in performing arts projects. Telepresence brings up issues related with identity, Boddington asserts, because the user can decide on multiple forms of representation and several multi-user online platforms; for her a major question is: "how do our avatars in the virtual domain realm reflect our selves?" (Boddington 2012, p.79).

Although Boddington differentiates character animations from the real-time movement transmission of video telepresence (2012, p.81), I feel that these articles fail to address a major feature of *Me and My Shadow*: instead of 3D constructed avatars, Hyde created a simple but very immediate simulation of the self. This is a fundamental

[13] Find a list of published writings by Boddington in http://www.rescen.net/Ghislaine_Boddington/index.html#.VKmI1CfnJ4w [accessed 21 December 2014].

difference that needs better understanding and evaluation in techno-aesthetic terms, if not in terms of dance as such.

In various conference papers, however, I have defended the interest of this project for a dance-led enquiry and expert practice; the work, I argue, is a relevant epistemic object allowing us to understand attributes of performance and components of the dance medium in artworks that use cyberspace as a venue[14].

7.2 *Me and My Shadow – a priori* content: themes, structure and components

This section focuses on the structuring system, with materials and multimedia elements, which were available for the user to engage with. Because "the audience is the content" this work is always dependent on interactivity; thus Hyde describes the pre-existing work as "a set of potentials that someone else can then use in a particular way". To enable those potentials however, many aspects had to be considered and defined; they characterize the work a-priori and determine the experience of it.

Rubidge finds that Deleuze's notion of "qualitative multiplicity"[15] is intrinsic to interactive installations, where the elements interpenetrate: "they cannot be subject only to material analysis, as can stable entities, for their very qualities are always in flux" (2006, p. 117). *Me and My Shadow* is an extreme version of the interconnected strands vision of the medium of dance (Preston-Dunlop & Sanchez-Colberg 2002); Rubidge's words apply sharply: "there is no 'form' per se, only a system which is in constant movement" (ibid).

From the practitioner's perspective I can follow the making process with a chronological thread[16]; in order to understand this latent system I propose to give an account of the practice-based research led by Hyde with a programmer (Phill Tew), various dancers and a dramaturge (Boddington). A lot of juggling was needed to work with the constraints of a new technology and achieve the intended results. When I interviewed Hyde he remarked that this involved "a big compromise, between technical demands and the results in aesthetics".

[14] See papers in (Varanda 2012; Varanda 2013; Varanda 2014a).
[15] Rubidge is borrowing from Deleuze and Guatari in *What is Philosophy?* (1994)
[16] See the section 2.3 in Appendix 3 for a list of the names of participants and residencies

Thematic concerns

Me and My Shadow was a commission of MADE - a network promoting mobility for digital arts in Europe (2011-2012) - developed in Britain by BDS with three partners: Centre Des Arts (France, Paris at Enghiens-Les-Bains); Transcultures (Belgium, Mons); and BoDig (Turkey, Istanbul). MADE was funded by the European Commission to promote transnational cultural cooperation, stimulate mobility for artists, artworks and audiences, and foster European citizenship.

The network opened an international call for a project in digital arts, which would involve residencies for process development and artistic collaboration with expertise and know-how from the four partners; Hyde was selected from a group of 98 applications and *Me and My Shadow* was conceived within this context. For Hyde this was a new approach to interactivity and telepresence that signposted recent and commercialized technology:

> The idea was that it would be all made of things that you could go into a store and get the equipment needed. Like the PC, it was quite an expensive one but it was just a PC, and the kinect – £100 each - and it was just a four channels sound system that you can get to play console games, and a fairly simple video projector. (Hyde in the interview)

Earlier concerns regarding fixed space and user interaction were to be overcome with this piece; that was possible with a new technology designed for domestic use – the kinect camera[17] – which is sensitive to human movement and captures 3D data, enabling the migration and navigation of a physical body into a virtual environment. As Boddington remarked: "we could now try telepresence in a much more easy and different way than we were doing 15 years ago, because of bigger broadband and many places being connected". Setting a professional motion capture system on public spaces would not be feasible, and video-telepresence did not allow navigation in 3D space.

Rather than a work to admire from outside, as Hyde explained, *Me and My Shadow* invited the visitors to "interact and to communicate with both their own representation and with that of other users"; thus he needed to create an immersive interface to a visual and sound universe, combining motion capture and telepresence. Hyde also wanted a specific mode of interaction: "It was to encourage movement", and this was substantial in the project development and its originality. *Me and My Shadow,* as he underlines, "was very much to be about a body relationship because I don't think that is something you find in other places". I would argue that this is also an enquiry

[17] In the third section of this chapter I provide more specification about this device.

about new media, new technological tools, and how can they enable dancing in cyberspace. However, while we can summarise that the choreographers Mulleras and Corsino were exploring the migration of the dance medium with assumed dance artworks, in this case the artists were using dance to draw attention to another purpose: the migration of the self and the social from the physical to the virtual.

Matching the technological enquiry – into the possibilities of telepresence and interactivity – with the aesthetic enquiry – into the ways of making such experience creative and engaging in affective terms— Hyde pursued a techno-aesthetic commitment to research about digital mobility and embodied interaction, thus aligning upfront with issues of wider significance for cyberculture studies. In these terms *Me and My Shadow* follows what Dunlop & Colberg have called a "cultural idea" (2002, p.18), because issues on self-representation and online interaction are at the heart of the work's thematic concern.

Structure of the work and samples for analysis

The work is physically displayed as four installations located in geographically separate venues, which operate as portals that enable access to a virtual and shared fifth space (fig.7:3). These portals are dark wooden boxes of about three meters high and four meters long installed in public places. Teleportation and real-time interaction is possible due to Microsoft kinect cameras that send the 3D movement data of each visitor to be processed inside a complex computer system, which then feeds the live stream that is projected back to the portal. Each portal provides a first person perspective into the common space; additionally an overview, monitoring the virtual space from above, was provided in the website of the Centre Des Arts (Paris).

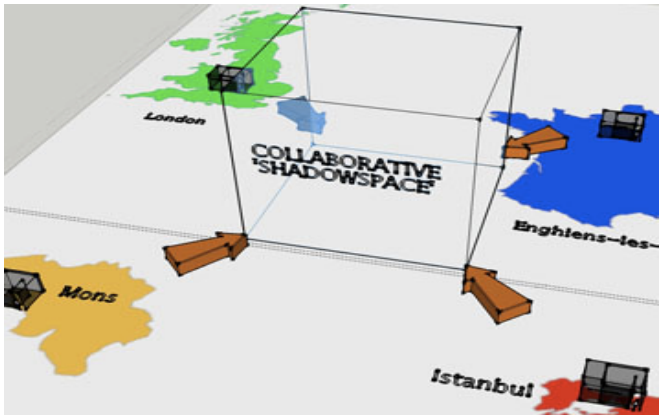

Figure 7:3 – *M&MS*, Four portals and countries scheme[18]

[18] Image from http://www.josephhyde.co.uk/wp-content/gallery/misc/portals-website.jpg [accessed March 2013].

Although it is spread in four different locations *Me and My Shadow* is a time-based event of fifteen days. It can be seen from different places, and it depends on who is there, but it has no sections, no possibility to replay, unlike the previous case studies: it's both ongoing and ephemeral. The installation had a similar set up in each country and the portals converged to a common environment.

The London perspective can however be said to represent my sample for analysis, because it was from there that I focused on a concrete example; my interpretation is limited to the material that I managed to collect with the sources indicated by Hyde and Boddington as well as their interviews, and my phenomenological engagement was confined to the portal at the National Theatre's foyer.

Body, performer, costumes

Inside the box one of the walls has a video projection that reproduces the visitor's body in the virtual environment. I call this individual perspective the performer's view because the system only responds when the visitor moves within the virtual environment.

The body is visualized in accurate form, in terms of outline and in 3D, but in the main it is a semi-transparent surface glittering on the screen, without identity traits such as face, skin, voice or clothes (fig.7:4).

Hyde calls this virtual human 'a shadow' and he conceptualizes it differently from the avatar[19]: "with the shadow, although abstracted, it was you, yourself. You were entering this world". This abstraction was "a mixture of necessity and choice", he explained, because the technology was not good enough to reflect the real as a mirror (like video); more detail required more synthetic construction and, consequently, heavier data, which would interfere with movement quality and transmission speed[20]. Hyde was sure about avoiding the fully synthetic representations, which are common in games like Second Life[21]; they "almost certainly get into that Uncanny Valley[22] effect"

[19] Avatar is used in computer jargon to refer to "An icon or figure representing a particular person in a computer game, Internet forum, etc." (http://www.oxforddictionaries.com/definition/english/avatar) [accessed 21st December 2014].

[20] Some of these problems of digital weight were already identified in the works of n+n Corsino and Mulleras, and in this case the speed of processing data was also subject to the quality of Internet connection.

[21] See characters and environments in http://secondlife.com/ [accessed 5 January 2015]

[22] Uncanny valley is a term used to robots and 3D computer animation because they look and move almost like natural beings, but not exactly; that difference can cause a sense of disgust and loathing among the observers. See http://en.wikipedia.org/wiki/Uncanny_valley [accessed 6 January 2015]. In SwanQuake User Manual, a text edited by Helen Sloan discusses the Uncanny Valley in relation to representation and character (deLahunta 2007).

and for him this "looks really horrible because it is distorted in a disturbing sort of way" (interview with Varanda, August 2013).

The shadow choice had efficient results with regard to other parameters such as movement quality, reflective embodiment and interactive feedback. Moreover this solution enabled two sorts of output from the motion capture data to be brought together: the actual moving performer, as a semi-transparent human figure, and the trails, in the shape of dots or circles, as a kind of dynamic costume, left by the body while moving.

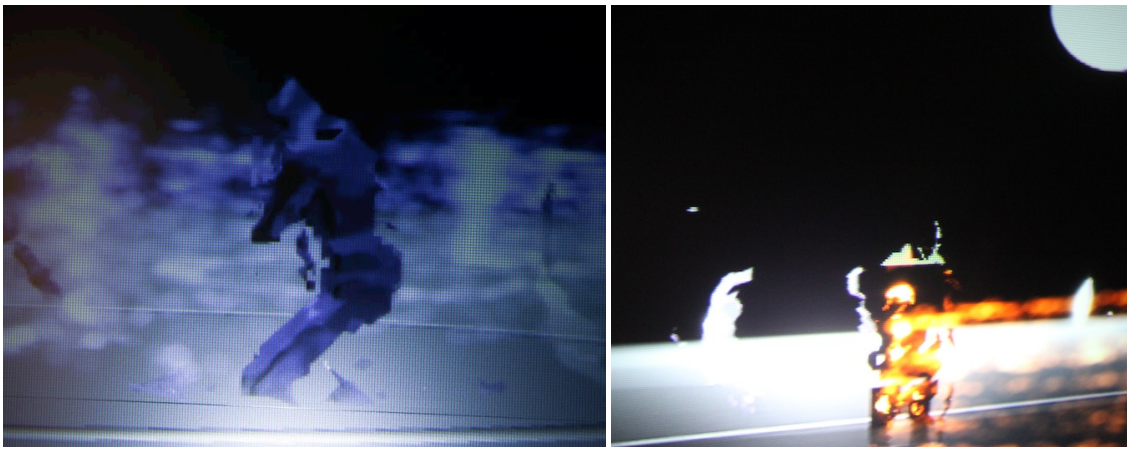

Figure 7:4 – *M&MS*, Virtual body representation[23]

To distinguish between each portal's participants, the virtual bodies differ in colour accordingly: Belgium is green, England is purple, France is orange and Turkey is blue. Because only one person at a time could be in each portal, individual identification was based on colours and movement.

In terms of number *Me and My Shadow* has a multiple configuration: it can be a collective performance (duet, trio or quartet) – depending on how many users are in the portals simultaneously, or a solo one, as the visitor sees his or her image reflected on the screen. In addition to the main shadow, Hyde and Tew integrated what they call shadow sculptures - "versions of the mesh[24] left behind as the user moves (kind of a shedding skin)", which are captured at regular intervals and appear as fixed images "as a moving body photographed with a strobe light". This echo of real-time movement, through fixed stills, related to the idea of leaving traces in the memory of the system and retrieve them: "you could see the shadows of movement made two minutes before, so you would eventually end up having the stimulus of your own self, moving two minutes

[23] Images documenting the installation in London and France courtesy of Body-Data-Space.
[24] In computing the term 'mesh' is used to refer to a set of finite elements that represent a geometric object for modelling or analysis.

earlier". The echo effect amplified the sense of collective presence, as it multiplied the number of bodies filling the space.

We can follow in the blog this technical but also aesthetic research throughout the residencies in Istanbul, London and Mons, until setting the final virtual body appearance that the users had in the public installation (fig.7:5).

1 - Istanbul, trails, September 2011

2 - London, body figure, January 2012, start of the residency

3 - London, January 2012, end of the residency

4 - Mons, April 2012

Figure 7:5 – *M&MS*, Evolution of the virtual body design[25]

The visitor in *Me and My Shadow*, becomes a real physical performer, who is the source of 'life' in the reflection in the virtual environment. There is not, in that sense, an ethical issue about agency, since without the real person's voluntary engagement there is no performance.

There is nonetheless a form of anonymization that is reinstated once again as a consequence of migration to cyberspace and technological constraints (which I raised in the other case studies). Stripped of physical characteristics that identify a person, this virtual body has the handicap of being unable to express feelings, or suggest breathing, for example. This sort of argument grounded Dils' negative evaluation of Bill T. Jones'

[25] Images from https://madeshadow.wordpress.com/

re-embodiment as a virtual character in *Ghostcatching* (Dils 2002)[26]. Dils meanwhile changed her opinion, recognizing that the ubiquitous presence of screens might have changed her way of seeing dance itself (Dils 2012, p.26).

Choreographers have developed strategies to adapt the live body to the technological determinations of film and videodance, fostering new perceptions of the body (fragmented, multiplied and liberated from physical laws), with screen dance performers (Dodds 2001). With motion capture choreographers have stressed the role of movement to identify the performer's individuality; emphasis in this aspect is not just a new issue in virtual dance, since movement, as we have seen above, can be viewed as a core element of the dance medium (Adshead-Lansdale 1988). However this is a predominant feature in the Corsino's work, performed by 3D virtual characters, and a recurrent argument in Kozel (2007). I believe that it is an intrinsic characteristic embedded in the transformation of the medium of dance, when dance instantiates in cyberspace. The performative trigger relates more to a remediation of the self as dancer, in detriment to its projection as persona.

Movement, Choreography, Sound

According to Hyde in interview, movement is the essential trigger of images and sounds, associated to the body. Studying how the system could stimulate and reflect that movement back was essential; when the work opened to the public there would be no pre-set performer or choreography and therefore the possibilities to sense, process and give feedback to the visitor's behavior had to be exhausted in the research phase.

Me and My Shadow is a lot about finding ways of connecting the real body with the virtual space and the virtual self, and much time was spent testing how this relationship could happen; enabling dancing as a behavior was a major concern for Hyde:

> I have always said that M&MS is a dance project, even though it is not dance on the stage and it is not for professional dancers; (…), the idea, more than anything else, was to allow you to dance with someone else, and somewhere else, in the broadest sense (Hyde in interview).

Although affordable the kinect was a new technological device and many limitations appeared: the tracking system is not always accurate in the reading of the real body, it

[26] See Chapter 2 and Chapter 4 for references to this work (from 1999), made with Paul Kaiser and the Riverbed team.

often loses the subject and it has a distorted depth of field[27]. For testing the device and taking decisions, Hyde worked with a team of dancers (trained in contemporary dance, some of whom were previous collaborators of BDS), during the residencies in Istanbul and in London (fig.7:6). As I have indicated above, not only were their skills an essential contribution as Hyde acknowledged - "If this was formed with other people, just dragged in from the street, they would have just stood there and done very limited, very restricted movements"- but it is their role in establishing the operating structure of the work that allows us to assess its place in the present study. It was their expert intervention as dancers that enabled it to operate. Hyde emphasized that dancers have dexterity and stamina, can improvise with a set of simple rules, have an extended vocabulary, and "are patient to wait"[28]; furthermore he said "they are curious and enthusiastic" and thus greatly helped to push the research forward.

Navigation inside the space was another aspect that needed thorough study and where the dancers were essential to understanding the possibilities: "that came about through watching how people moved in it, rather than it being a fully-formed previous idea" (Hyde in interview with Varanda). From there they set up rules to programme the software; leaning forward, backward or sideways, stretch up or kneel down and twisting the torso were all actions used as controls to navigation.

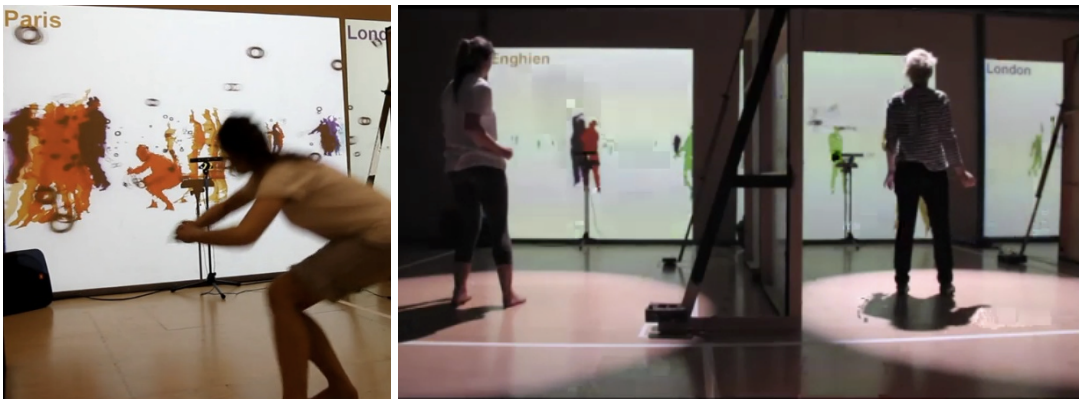

Figure 7:6 – *M&MS*, Exploring movement in the London residency[29]

The elements triggered by the users included small looping sounds, which were linked to the trails or the body shadows; additionally, like the colours, the four portals had different distinguishing sounds:

[27] See for example the blog on the 20th September for various references to these difficulties. I have also made a hands-on experiment with the technology and it is not at all a straightforward process, it does bring with it many conditionals.
[28] Patience is a quite needed quality in the often quite slow process of working with technology, particularly a new technology, when functioning and potential are being tested with a new idea.
[29] Images documenting the installation in London and France courtesy of Body-Data-Space.

> Your sound in London was a kind of "ping", and you would be able to hear that from other locations; So when I was in Paris at the opening, outside the portal, and I would hear a "ping!" I knew someone had entered the space from London". (Hyde in interview)

The sounds reflected the presence of people and the sound generated in one portal was heard on the others. This resonance replaced vocal communication with sound communication as Hyde described: "you couldn't say anything but you could go "ping" here I am!". The sound also helped navigation and was related with spatial position: "If you left the performance border in London, the sound would become silence, or at least quieter", depending on what was happening in the other portals.

Because *Me and My Shadow* is basically an improvisation work the notion of choreography does not apply as it does in the other two case-studies. We cannot describe, contextualize nor evaluate the choreographic quality of the work as such, but we can evaluate its quality as enabler of an improvised dance performance. This dance performance is more or less 'choreographed', depending on the visitor's interest and ability to assume performance agency and manifest aesthetically with the body. Whereas in *96 details* and *Soi Moi* the expert-dance practitioner's position was secured with choreographers in the leading role, such a role seems to be shared between the expert dancers involved in the "proto-performance", which in Schechner's terms (2002, p.195) is the stage of preparation of the performance, with training and devising, and the partakers (experts or not) involved in the performance.

'Camera choreography' was, on the other hand, an additional potential effect, as happened in *96 details* - where three different shot angles were combined - or in *Soi Moi* – when the user could control camera movement with touch.

In *Me and My Shadow* movement is reproduced in two ways: the anthropomorphic shadow on the screen and the point of view (POV) over the environment. The first POV - achieved with three kinects installed in the portals - was fixed and framing the subject, capturing the real physical bodies; Hyde calls this the 'real' camera. The second representation of movement was from a 'virtual camera' that showed the user's perspective with regard to the space and mirrored the movement-rules set for navigation. If I twist to the left my POV moves and therefore the environment moves; if I do that while swinging an arm I have two movements

juxtaposing. 'Camera choreography', although requiring an acquired skill for the performer to use it, can then be juxtaposed with body choreography[30].

Space, place, venue

The environment into which a person may teleport is a wide round surface with white floor, similar to the planet seen from the stratosphere, surrounded by a black void where the moon and some stars mark the sky (fig.7:7). I experienced this as unequivocally a new place and the fact that people converge here stresses that quality. Hyde however, initially intended to reproduce an empty stage and work with spatial coordinates, rather than already-meaningful elements.

Figure 7:7 – *M&MS*, Overview of the virtual environment[31]

The empty screen, which we can see in the early experiments, proved nonetheless to be very difficult to work with; the performers had to progress inside the space to meet each other, but without physical references for orientation they could hardly navigate. It was again through necessity that the performance space was defined as a place. This reflected the need to turn computer space - which Manovich designates as isotropic because it does not privilege a particular axis - into human space where, as he remarks, "the veritcality of the body and the direction of the horizon are two dominat directions" (2001, p.262).

[30] Another camera, provided the streamed overview and was controlled by Tewas an external eye; after discovering possible combinations between cameras Hyde wanted to combine this third layer with the internal view (in the blog entry September 2011); but with the dancers he realised that it was confusing for the viewer-performer and so Tew programmed the overview shot to move slowly around the space.
[31] Screenshot from the installation overview © Joseph Hyde, courtesy of the artist.

The space size informed early discussions; in terms of digital space it could be anything: infinite or very small. Hyde explained that an optimal proportion eventually appeared, which was "the size that you have space to move around but do not get lost". Orientation was also a crucial need and the artists set up a light against the sky to help understand one's relational position: "if you were in the dark you were on the edge and if you had light you were in the middle" (Hyde interview); this light was later assumed as a permanent full moon. A similar situation came with the horizon line, which in turn helped decide on a floor surface, to distinguish between the 'earth' and the air, and associate the virtual spacing with physical rules, such as gravity and perspective.

Hyde was satisfied with the qualities of the space: "it became a nightscape… a slightly mysterious kind of universe; and the floor became quite misty, it took on a characteristic"; but he remained faithful to his wish to emphasize *Me and My Shadow* as an experience of bodies and their traces (fig.7:8).

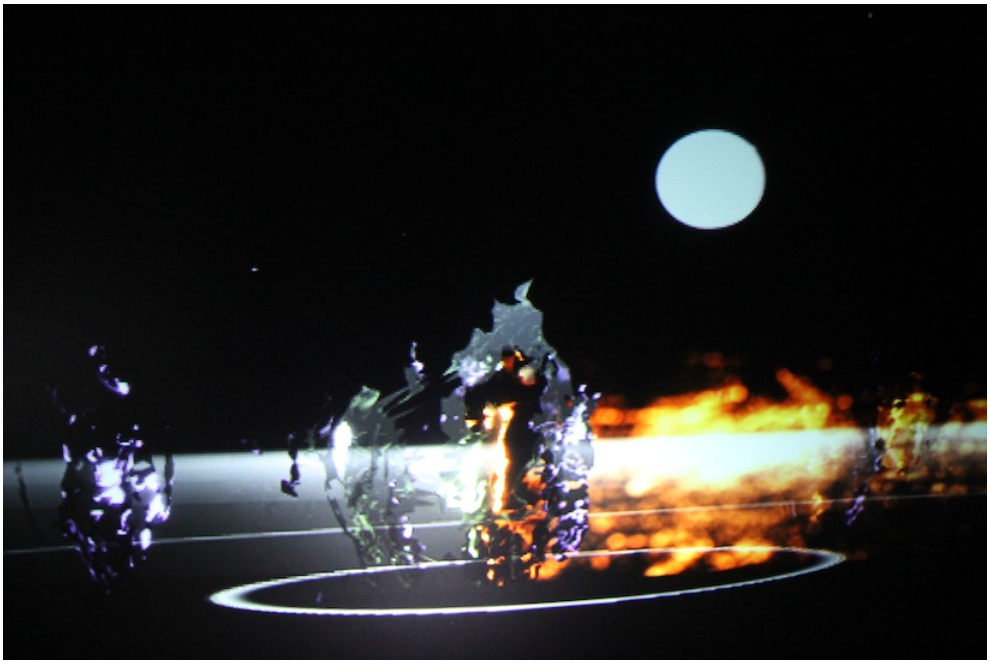

Figure 7:8 – *M&MS*, The virtual environment from the visitor's perspective[32]

In individual terms I found the space/place of the piece very appealing because of its meaningful but discrete references and it functioned for me as a possible visualization of cyberspace; rather than sending the physical to a spatial void or a data matrix, it propels us into a surreal and imaginary landscape. Hyde was interested in exploring a concept of "permeable media" and providing a sense of getting inside the digital world; such an effect was related with the visual of both the body representation and the aspect

[32] Image documenting the installation, courtesy of Body-Data-Space.

of the performance space. In these terms *Me and My Shadow* replicates the notion that cyberspace is 3D data navigable space where the user steers through content and representation (Manovich, 2001).

The created place was nonetheless clean enough for improvisation and communication to develop without much distraction; as Hyde stated at an early stage, this was related to the idea of allowing the users a creative input: "Players should actually be able to create, to shape, to sculpt the environment with their bodies and gestures. Without this, it's 'just' 3D telepresence" (Hyde in the blog)[33].

In Hyde's concern with filling the space with human movement, rather than objects and references, I find a connection with the way many contemporary choreographers have worked with space and place. Such stage-based approaches, in turn, often replicate in new media dance works; as Bench has argued, in her concept of no-place (in Chapter 5 above), artists abstract the theatre space to facilitate choreographic writing. For Loupe "the contemporary body is the agent of its own space" (2012, p.196 [1997]), which she sees as liberating and creative opportunities. The role of the body as a space designer in dance was also emphasized by Adhsead-Lansdale (1988); and Forsythe has notably replicated geometric norms in dance[34]. In *Me and My Shadow* these ideas operate intentionally with evident results: with movement the performers create ephemeral visualizations and sound atmospheres.

Because four participants can meet in a shared virtual environment the artwork resembles a chat-room. For Dixon this model characterizes cyberspace and differs essentially from previous telecommunication technologies; however, in relation to other forms of convergent online interaction, *Me and My Shadow* includes full body performance in real time encounters in 3D space, thus enabling a joint enactment of the notions of space (design) and place (environment). How can these people chat? With gestures and dancing. Such presence triggers visual and aural design in the existing space; but with collective cohabitation, the sense of place, which was firstly achieved with elements like the moon, the horizon and the floor, gains depth.

Dance performance in cyberspace becomes a reality in *Me and My Shadow* because the networked space of computer data is used as a site for activity and its publication (to the others – in the portals, to the world in the online stream); this was a procedure inherent to Auslander's idea of a venue in cyberspace (2001). Ultimately the virtual environment is a stage where the event occurs; data space 'transcodes' in a site-

[33] See the blog transcript section in Appendix 3, entry on 16th September, 2011
[34] See *Improvisation Technologies* in Chapter 2.

specific stage for performance, requiring a new media principle to operate (Manovich 2001).

The notion of venue that hosts a transaction is nonetheless defined in *Me and My Shadow* by its physical location. The portals were installed in places that carry different connotations to the work: the foyers of the art venues (in London and in Paris) strengthen its status as an artwork; the arcade space in Brussels emphasizes the quality of playful urban art; and the university studio sets the frame for a practice based scholar research. However, with the MADE context as a frame, the identification of an artistic and aesthetic practice, although digital and interactive, was never destabilized.

7.3 *Me and My Shadow* – transactions between the artwork and the audience

This case challenges the qualitative section of the hexagonal criteria frame, which I assembled to clarify my conceptualization of dance performance in cyberspace[35]. *Me and My Shadow* shows weaker links with the criteria of disciplinary field, expert practice and artistic purpose because there is no choreographer's signature, no professionals dancing, and it is aimed at social exchange.

From such a perspective the work bypasses the understanding of dance discussed in Chapter 4; in this piece body and movement are constituent elements, which articulate with other strands that have a visual and aural measure, but they remain possibilities rather than prescriptions: anonymous visitors and their unpredictable behaviour will determine whether the event realizes as dance or not. Such contingency supports arguments that artistic practices created with digital technologies are of a hybrid nature, as perceptible in statements by Birringer, Rubidge and Dodds. Furthermore, being a sort of chat-room, made with current commercialized technology, and the product of non-expert partakers, the notion of the artistic "masterpiece" is hard to sustain, as Wilson remarks to be the case for many "information-arts" (2002).

On the other hand, in this real-time, full body, collective interaction located in a specific place the attributes of performance can be recognized. Mediated but ephemeral, *Me and My Shadow* has a secure connection with the defining theorizations of Auslander, Kozel and Rubidge, again discussed in Chapter 4, and the centrality of constitutive elements like the performer (the visitor) and the performance area (the

[35] This discussion was developed in Chapter 1.

virtual space), reinforce this correlation. Additionally instantiation in navigable space gives form to the concept of cyberspace.

In this section I have focused on the aspects that determine participation that in turn defines the work-event or, in other words, how the performer engages and 'creates' the performance.

Interface, interactivity, feedback

Me and My Shadow requires a sophisticated interface, involving hardware that is installed physically and software to manage digital data; this hardware (camera, computer, video projector, and sound speakers) is available on the market and, as Hyde underlined, is relatively cheap[36]. The interface depends on the installation of wooden boxes - the portals - which ensured that requisites such as light, space and screen dimension, and the sharp positioning of the equipment, were guaranteed so the system could respond effectively. The portals were open over two weeks with timetables depending on the hosting venues[37]; in London, the portal installed at the National Theatre was open all day from the 10th to the 26th of June.

The system manages a complex set of operations to accomplish several functions: tracking - to import the visiting person's data and teleport presence into a virtual environment; communication – to display real-time information to other sites and other people using the Internet; and interactivity – to feed back to the individual accessing the artwork.

Microsoft kinect, a camera conceived for the game console X-Box[38], was used inside the portals for motion capture and tracking; the treatment of this data was then programmed by Hyde and Tew to transmit back to the portals and the virtual environment, thus enabling the interaction between the person inside the portal and the virtual environment (fig.7:9).

[36] The system is hypothetically replicable in a domestic situation, but the work demands a high level of expertise to deal with the involved technology, which the public user would not have. Thus the prospect to develop a home-based version of *Me and My Shadow* was an idea to develop with future research, which I have discussed with both Hyde and Boddington in the interview.
[37] See Appendix 3, section 2.3 for a detailed list of the venues, dates and timetables.
[38] Information about the kinect in http://en.wikipedia.org/wiki/Kinect [accessed 21 December 2014] and in http://www.xbox.com/en-US/xbox-one/accessories/kinect-for-xbox-one [accessed 21 December 2014]

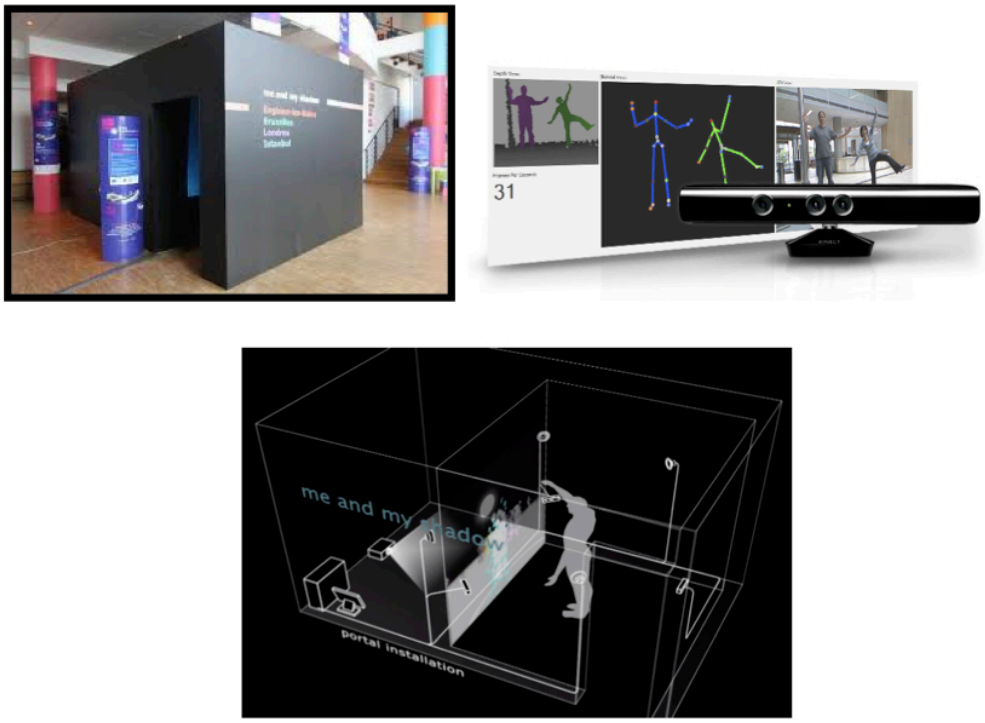

Figure 7:9 – *M&MS*, Portal scheme inside; portal outside in France; kinect camera and modelling process[39]

Two models of computer-mediated interaction are put together in the piece: the first is closed human-computer interaction (HCI), since the system can provide feedback to the visitor's activity, stimulating further activity; the second model is computer-mediated communication (CMC): with their presence mediated by the machines two or more people can interact in the virtual environment. Because the portals did not always have people in at the same time[40], the telepresence encounter could occur - between two, three, or four people - or not happen at all; in that case the visitor could play in a closed system, with his or her own reflection, the trails and the sculptures retrieved from the hard drive's memory.

The dark portal was an empty cube with a white dot on the floor indicating the central standing position from where the visitor should start his/hers action, facing the fourth wall, which had the projection of the performance space. In this interface the body was a single controller (a possibility offered by the kinect), and Hyde restrained the sensors of the camera to track physical movement[41]. Embodied interaction with other bodies "was a really important aspect", Hyde emphasized, because it was an alternative to common game controllers (like joy-sticks or keyboards) that encourage

[39] Images from http://www.microsoft.com/bizspark/images/cms/kinect1.jpg and https://madeshadow.wordpress.com/
[40] As indicated in Appendix 3 they even had different dates and timetables to open to the public.
[41] The kinect can also capture sound with a built-in microphone.

immobilizing entertainment and physical passivity; but he also wanted to "make the technology invisible" in order to focus the experience on a singular view and extend the immersive potential of the interface, thus rejecting any other control device than the body itself.

A good interface depends on affordance, which is the evidence of instructions in the artefact's design per se, facilitating fast comprehension on how to use a device (Norman 2002). The freedom given to the visitor, as well as the rules to participate, Popper remarks, are crucial aspects for rewarding and mutually influential transactions with interactive installations (2007).

How were we informed about what to do? *Me and My Shadow* mostly relied on the intuitive approach of each visitor and that is why the research process was so important to test and attune the responsive system; the visitor should need minimal instructions and the quality of the interface design is based on that fact. Additionally, the Body>Data>Space team prepared a group of 'invigilators' to explain to the coming visitors elementary clues to dance with the shadow, navigate in the environment and communicate with others. The visitors would know, for example, that to meet other people everybody in the portals needed to head towards the light.

Control, partaking, authorship

The visitor is the evident performer of the work, therefore shaping the space within the constraints established, the camera view and the dance within; as such, *Me and My Shadow* conveys Dixon's model of collaboration (Dixon 2007): the anonymous and casual audience member is a primary material that feeds the whole piece in performance terms. Hyde's idea was that "on day one the work is empty, but then it gradually fills up, with people coming in, and that stays in the computer memory". Thus the visitor, whether aware of this or not, makes an aesthetic contribution to how *Me and My Shadow* took form while the installation was up and running. When encounters with others were successful they resulted in a mode of aesthetic communication and in this sense Dixon's conversation model was operating (fig.7:10).

The position of the audience is definitely transformed in relation to the standard proscenium-stage and choreographer-led dance performances[42]. As in the previous case studies, this transaction is mediated and framed by the electronic system and the pre-set components; however, because in partaking the spectator becomes a central performer

[42] I have nonetheless seen a stage performance by Brazilian choreographer Gustavo Ciríaco - *Nothing, we will see…* - that used methods of audience participation in networked and media environments.

this case engages the user in a significantly different way, which is also distinctive from many installations made by other practitioners or studied by other researchers.

In the context of dance the installations I am familiar with operate in three types of responsive systems: a) the user action translates into aural or visual output, either video or computer graphics[43]; b) the user interferes with navigation in the screened environment where virtual performers are represented[44]; and c) the installation enables user interaction with other people due to video-based telepresence link between remote sites[45]. On the other hand, these models do engage the visitor in a variety of interface models based on touch, voice and movement, with body-parts or the full body[46].

Me and My Shadow gathers all three types of responsive systems, centring the control of visual and aural effects – associated with the reflected human figure - on the human body; navigation inside the virtual environment - progressing in space and controlling the point of view; and telepresence – the body silhouette is the medium to communicate with others. This is a distinctive configuration, which contributes to the work's efficacy and owes as much to the new technological elements involved as to the clear conceptual positions stated by the artists and their expert-intuitive decision-making that drove the making process.

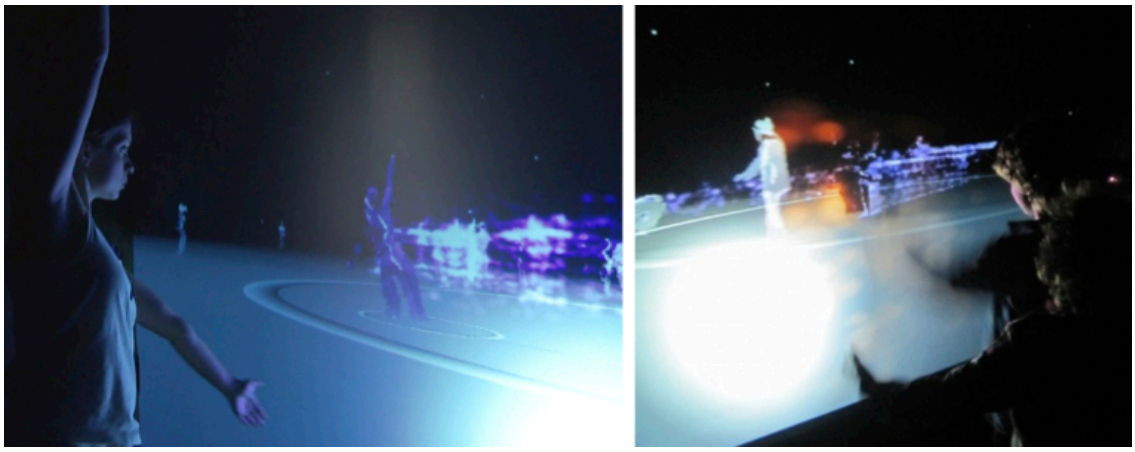

Figure 7:10 – *M&MS*, Visitors control the shadow and interaction with others[47]

Rubidge (2009) defined performative installations as artworks that reveal through the visitors' behaviour, which changes them; this classification applies especially well to

[43] as Rubidge experimented with *Sensuous Geographies* (2004-2006), Schiphorst in *Bodymaps artifacts of Touch* (1996) or Kozel with *Trajets* (1999-2000)
[44] As it was the case in the installations *Summerbranch* (2005) and *SwanQuake* (2010), by Igloo, or *Seule Avec Loupe* (2006) by n+n corsino
[45] As Sermon and Kozel developed in the historical piece *Telematic Dreaming* (1992), which uses real time captured image with a video camera (2D)
[46] See more examples and discussions in Chapter 2 for Igloo, Kozel and Schiphorst, and others.
[47] Screenshot from documentation movie at https://vimeo.com/62243538 and picture of the installation in London (courtesy of Body-Data-Space).

this case. In this kind of transaction, as she previously suggested, the limits of the computer system meet with unlimited possibilities:

> The participants in a multi-user interactive installation are the 'wild cards' in the system, for their understanding of the system is gleaned from a variety of prior experiences of both life and art, and from the deeper levels of their physiology (Rubidge 2006, p.118).

It is worth asking at this point whether such a determinant role in activating the system means that the visitor is more involved in authorship than in the other two works, by the Mulleras or the Corsinos. Like all interactive artworks *Me and My Shadow* is an incomplete product where the artist, as Popat has asserted before "designs a framework that contains the potential for the creative experience of the participant" (Popat 2006, p.34). To evaluate the piece, and thus the quality of the experience, we must consider the importance of the team exploring these possibilities and the value of that labour in terms of research. The authoring team in the proto-performance phase, as Schechner observes, might be invisible when the visitor comes in; but that work, and undoubtedly Hyde's leading role and values[48], were crucial for the impact and distinctiveness of *Me and My Shadow*.

Rubidge's specification that the visitor is a co-author of the work-event, not of the work that enables the event (2002, p.156), may well be a notion better-suited to this case. Understanding the audience's place in terms of authorship in this way ensures the credit of a multi-skilled team of professionals, whose expert-intuitive processing, as Melrose would argue (2009), was crucial to lead the research on the subject matter and the technology to achieve empirical fit with the material event and the expectations of the user and onlookers.

Immersion, embodiment and affectivity

In the previous case-studies, in order to instantiate in cyberspace, dance performance left its habitual venues, like the theatre or the cinema, and moved to unusual materials and contexts: the desktop computer or the I-phone, the domestic and work environments, or urban public spaces. In those migratory processes I identified a problem of competition: the user's attention was shared with many coexistent activities,

[48] In getting to know Hyde's various pieces, his positions and his beliefs, often stated in the interview, I perceived a genuine interest in collaboration and a generous attitude. The idea of sharing the art with the public, rather than remaining ina highly institutionalized circuit, was very clear; but he was also keen in sharing the process with the audience. He wanted *Me and My Shadow* to be open source. His positioning is similar to that of Didier Mulleras, and I find it particularly important for a successful result in artworks that are participatory and open to the general public.

functions and information, which disputed the needed focus on the artwork. Since the interface and institutional affiliation of the events set a clear frame, in *Me and My Shadow* that conflict is avoided*;* in contrast, this work relied on physical skills and choreographic sensibility of visitors in general, undertaking another kind of risk: would people without experience of dance explore the potentials? How did the performative triggers contribute to enhance the "aesthetics of experience"?[49]

According to Popper a particular concern in interactive installations is immersion[50] and artists search for, and enhance techniques to, stimulate sensorial engagement. Physical immersion increases emotional attachment and encourages suspension of disbelief and critical distance; surround systems are also important for the visitor to enter, belong to, and intervene in the created reality because they give the sense of being in another place (Popper 2007, pp.181–182).

The separation between the real and its representation in a rectangular frame, which Manovich finds in some screen-based traditions, is dissolved with new media like Virtual Reality[51]:

> The alternative tradition of which VR is a part can be found whenever the scale of representation is the same as the scale of our human world so that the two spaces are continuous. This is the tradition of simulation rather than that of representation bound to a screen. The simulation tradition aims to blend virtual and physical spaces rather than separate them. (Manovich 2001, p.112)

Because Hyde was seeking for an experience grounded in the physical body - free from wires, glasses or data gloves - he saw *Me and My Shadow* as "almost the opposite of virtual reality" (interview, August 2013). However, he used various techniques of immersion and illusion to make a mixed reality kind of work[52]: a) the screen wall in the portal was big enough to mirror the real scale of the visitor in the virtual simulation, enabling the sense of continuity; b) the sound surrounded the visitor with a four speakers system; and c) although the portals were accessible in public places and led to a common virtual space, inside the dark box the visitors were playing in a private room; as the audience comments reveal this helps uninhibited concentration: "Magical,

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[49] I cite Birringer's notion of "aesthetics of experience" (2008), which operates in interactive installations open to creative participation; this notion was introduced in Chapter 5 and Chapter 2.

[50] Popper finds this aspect to be more relevant in installation works than in the other virtual art layouts.

[51] Several of the books here used have entries about Virtual Reality, locating history, technology and artworks (Bolter & Grusin 1999; Bolter & Gromala 2003; Dixon 2007).

[52] Rather than the imagined evolution to a post-human condition, of existence being somewhere in a virtual reality, Hansen says that technological development has 'naturalized' the virtual, separations from the physical are less accentuated and the body is the central link between them. Thus today, he believes "all reality is mixed reality" (2006, p.1).

beautiful, futuristic and brilliant. I danced like nobody was watching...” (in madeshadow.wordpress.com/)[53]

Full body telepresence, 3D representation and fast feedback, Boddington remarked in interview, were essential triggers for people to “definitely have an immediate relativity as one’s self”. The virtual performer’s appearance was also important for good physical movement’s reflection; as she pointed out: “people relate to their abstract self because it is doing exactly what they do”. These aspects are determinant for a sense of ownership and agency in virtual environments, which increases in telematic performance, as Potat and Preece have argued when the moving body is both sender and receiver[54]:

> Feedback loops that link intention-action-proprioceptive feedback are critical to the achievement of embodied agency, creating a sense of self efficaccy in the virtual world, or indeed any world (Popat & Preece 2012, p.164)

In this artwork, given the complexities of set-up and structure signalled above, eventual embodiment occurs both as agency and as representation and is ensured by the direct relationship between source and reflection. The visual appearance was a technical solution and an aesthetic choice that Hyde assumed; but the simplified anthropomorphic figure did not seem to prevent the visitor from engaging with his or other peoples’ simulations. Exact reproduction of clothes or the face, Boddington observed, “would maybe even be distracting, and in the end was irrelevant here”. Irrelevant I suggest, because presence and identity are ensured by agency: the movement of the person, reflected in the ‘shadow’.

In tangled relation with other strands of the work, this reflection seems to me to trigger affects related with kinaesthetic empathy and the sense of belonging, which augment the authenticity of the aesthetic experience. Furthermore, the awareness of other people’s presence from other parts of the world in this space, increases the realness of the experience on the ground of affectivity (fig.7:11). Directly communicating, realizing co-presence or the expectation of meeting someone, are sensations that resonate immediately in the body and stimulate the will to be there.

Once again, as an open artwork that requires audience active engagement with a dance activity – in *96 details* I summarized it as kinaesthetic play, and in *Soi Moi* I identified it as a somaesthetic relationship - *Me and My Shadow* depends on the

[53] See also Appendix 3.
[54] Popat and Preece (p.163-164), engage with Hansen’s appraisal of motor activity to connect the physical with the virtual (Hansen 2006) and refer to neurological studies to discuss this subject.

knowledge and experience of dance that the 'spectators' bring to the 'stage'. They are the "wild cards", as Rubidge mentioned, but such is the nature of the work and the artists clearly prioritized an anonymous and unqualified target audience.

Figure 7:11 – *M&MS,* Visitors control the shadow and interaction with others[55]

Hyde nonetheless manifested some disappointment by not having more visitors with dance knowledge; in the few times that happened, he mentioned, "they got really good at it, after experiencing it for a while", and although that was not a game, he admitted, "they would have got a high score; they could fly, and other things, more than anyone else". Boddington on the other hand trusts that "everybody can dance" and because they are in a private and black box "people suddenly explore with what they know; you can actually see where is their dance background, if they had any dance in their lives". She agreed nevertheless that taking time inside the portal (ideally 15 minutes in average), is essential to pass the stages of relating with the shadow, achieve orientation, discover navigation and then play and explore.

Although I observed other people's performance from the overview, the major element for evaluation on the basis of a transaction is my own experience, which bears the background of an expert practitioner and spectator. As Thomas emphasised (1995), to consider reception as an element of evaluation, then the subjective, interpretative and experiential account of the teller must be part of the story. This is indispensable in a work that is attended from a single person's perspective, which is formative of what the work is. I will recall that experience now, from an inside view and an outside perspective (figs. 7:12 and 7:13), making the case that my expert position, which may increase understanding and fruition, also sharpens my critical insight.

[55] Documentation image of the installation in London (courtesy of Body-Data-Space).

Experience and event: performing in cyberspace

I adopted the performer's perspective from the portal at the National Theatre on the 25th June in London. I entered the virtual space six times between 4pm and 8pm[56]. My first impression was of disorientation. I was overwhelmed by the close screen, where my body was reflected with a transparent purple and twinkling contour. As I moved sideways or frontwards my view of the scene changed, indicating progression inside the virtual space. To begin with I ignored that feature and engaged with the shadow reproducing my dancing and my gestures.

Gradually I recognized among the silhouettes rapidly springing out of my movement and spreading in the space, which ones were mine and which were from others, who had been there before; then I felt deep inside, in the middle of a crowd, where I could behave creatively. Being a trained dancer I am very sensitive to kinetic stimulation and rapidly I became immersed in the interaction with other human figures.

The sense of moving around was crucial to that feeling; but the music was also endearing, because the rhythmic, melodic and smooth timbres followed my pulse, becoming quieter at still moments and richer at peaks of activity.

The portal in France was also transmitting and for some time I managed to communicate with the orange person that was also in the space, generating sounds and shadows and moving around. This interaction was not so easy to establish and it distracted me from the amusing relationship with my own reflection. I had to suspend the joyous feeling of sliding and dancing, freely through the space, in order to focus on the 'are you there, can you see me, hello' kind of communication with a stranger. This person was also surrounded by silhouettes and ripples, and deprived from habitual signs of identification; if I moved too fast I would loose sight of the other performer amidst the crowd of shadows. It was interesting nevertheless to realize that I needed to slow down to 'listen' to the other and make my own 'voice' more clear; this is required to entail any kind of dialogue, mediated or not. Even more interesting was that although there were only two of us actually inside, this visual and aural fantasy landscape seemed quite busy and lively; it felt like being in a crowded space.

The shadow figure also helped me to express myself[57]. I knew my action was transmitted to the other portals and the 'outer world'. The shadow allowed me to very

[56]Between 5 and 15 minutes each time, I was inside for about an hour in total

[57] I love to dance, but throughout my career I realized stage performance was not going to be my way. Such exposure intimidated me and I was too self-conscious. I am a much better dancer on a disco dance floor or a jam session, when those who are seeing are also those who are doing. It is a very empowering and delightful moment, but it has to be on those grounds, as if nobody is watching.

concretely be someone active in the collective space, and yet it was a filter to preserve my real identity.

As I am terribly concerned with privacy and protection of personal life, it was comforting to feel that I was only partially there; this helped me dance with strangers: shaking hips, waving arms, without fear of misreading of my body language and any sort of appropriation of me, through my visual features, my gender…

After being inside a few times I prioritized a kinaesthetic power that prompted me to press on. I improvised with the environment created by me, my shadow and all the other figures, retrieved from the data base memory and generated by the other orange someone; although we were not directly 'speaking' to each other, we were co-present and dancing in the shared performance space.

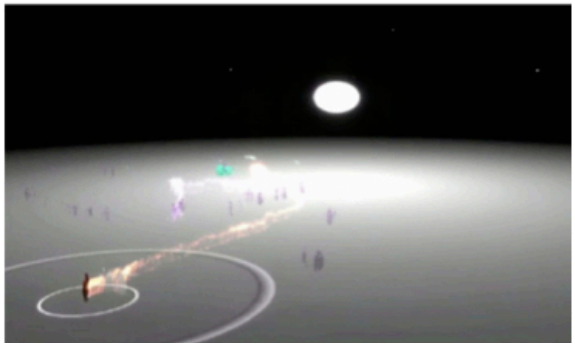
To explore the potential of the system I stretched my body skills and I was mesmerized with some discoveries that entertained me for a long time. I could melt into the earth: if I kneel down in the real space, my body disappeared into the floor of the virtual environment. But I could also fly: from the ground, with the proper impulse upwards I could jump and emerge suddenly, as if shooting my body towards the sky.

Figure 7:12 – *M&MS,* Experience with performer's view, screenshots from documentation movie

I found another amusement with running; the real space is small and we move mainly on a fixed spot. But we can run on the same spot and feel ourselves diving into the void of shadows and sounds. A tilting sideways arabesque on the other hand, gave the sense of fast ice-skating on the surface of the world. The poetic experience was intense and touching, and the sensation of teleportation into 'somewhere' fantastic was very strong.

Experience and event: watching dance in cyberspace

From the long shot overview, which was streamed on the web and displayed on a LCD panel at the theatre foyer, we can witness *Me and My Shadow* as spectators of an event. I call this the 'performance perspective'. I studied the work from this view while I was waiting because the portal was busy. I had watched the live stream before, from Lisbon, but my attachment became stronger, after being inside, since I could observe something that I had experienced myself.



This perspective was extremely appealing; it exposed the complexity and quality of the system, which is mainly invisible and incredibly efficient. And I could contemplate the pictorial, motional and sound presences progressing in time and space. Eventually I admired a real time creative improvisation taking shape between the purple London performer (inside the portal nearby), and an orange performer entering from France.

The details were not fully perceptible because people appear as tiny beings; but with prolonged concentration I could understand and appreciate the juxtaposition of shadows, the more or less intentional relationships happening, and the emergent 'choreography' of body shapes spreading out on the white surface under the moonlight.

Other times I focused on the overall drawings created by the moving shadows and space trajectories, expressed by lines of lights, pulsing ripples and smoke traces; they could slide incredibly fast, like skiing statues. This surreal place was a stage! I was delighted to gain that awareness and assess the event from a contemplative position.

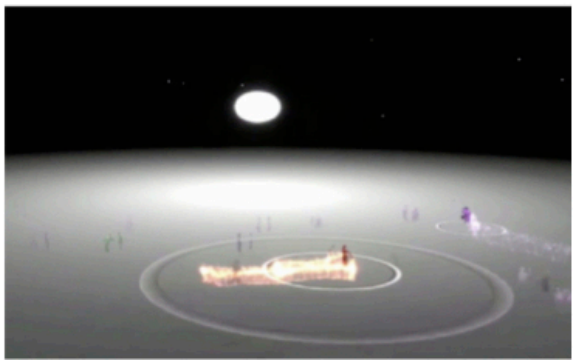


Figure 7:13 – *M&MS,* Event on the performance view, screenshots of the documentation movie (this and previous page)

The dancing phrases, trails and sculptures depend on the irregular real presence of people at the portals: sometimes the place is busy (as the streaming showed on the opening day); sometimes it is very quiet (like during the night). It was quite nice to see the fluctuant trails 'winding down' and disappearing, when a performer left the place.
If nobody is inside the portals we just see shapeless traces and blinks, softly sliding on the empty stage. These floating forms are a visualization of the invisible particles, in continuous motion, that integrate our atmosphere; they give a sense of an alive and real environment, despite its temporary emptiness of human inhabitants that brought an organic natural feeling to the moonscape, which was quite attractive.

7.4 Techno-aesthetics in *Me and My Shadow* – lets cyberdance

With the examination herewith entailed I reported the process and outcome that characterize *Me and My Shadow*, showing how the pre-existing structure shapes the content provided by audience participation. This is a case where embodied communication, real time human-to-human exchange and virtual environments are greatly combined; an immersive singular kinaesthetic encounter, with ourselves and with others, was made possible.

In a straight line with procedures familiar to virtual art that Popper identified, the artists gave a new function to a technology widespread by the entertainment industry and made an original system that, I would argue, reflects their beliefs and practical propositions. The connections between the artwork and the themes of self-remediation and online interaction, as they are taking shape in cyberculture, are the subject of this

section. I shall make a case for the importance of an artistic and professional vision about dance involved in this process.

Self experienced through the body

Remediation of the self and the desire to be present elsewhere, Bolter and Grusin have observed, is a goal long pursued by human beings that fuels new media development and enthusiasm with presence in cyberspace. Self-presence can be projected by text[58], email, sound or video, and in computer graphic spaces, depending on preference and available technology; "the form our networked selves take" the authors say, "is constrained by the formal qualities of the particular media through which they are expressed" (Bolter & Grusin 1999, p.234).

To remediate the self with embodied representation, telepresence must combine real-time interaction with telematic image (Kozel 2007, pp.86–87)[59]. Video conferencing is a current way of doing so, but there is no multi-user convergence and navigation; moreover, the body can be a major source of content, but not a controller on a virtual site.

Multi-user domains available in videogames or social platforms[60] offer today possibilities of self-remediation where we can create multiple identities, embodied with computer-generated avatars, and personalize self-representation with gender, race, costumes and even creature choices. Those representations have nonetheless restrictions that, in due fairness, are likely to raise negative responses from most expert dance practitioners or spectators: humanoid 3D avatars have extremely limited motion capabilities and real-time dancing can only be awkwardly reproduced, as Hyde remarked and rejected[61].

The transformation implicit in digital puppets with skeletal and facial resemblance to human beings, entails considerable degeneration, not of digital data, but of what I have argued above, are elementary components of the dance medium. Besides, online identities can be liberating and give shape to the imagined and desired fantasies of self-remediation, but they tend to depend on pre-set models; currently they can only

[58] Some practitioners have 'proved' that we can also 'remediate' dance with text. A web-based example is Lord's *Lifeblood* (1997) mapped in Chapter 2; I have also witnessed a stage based approach by Brazilian choreographer Denise Stutz *(3 Solos em 1 Tempo,* 2008), where she describes the choreographic sequence of a *pax-de-deux* while we imagine it happening on the stage ahead of us.

[59] That was the case with the installation *Telematic Dreaming,* that Kozel did with Sermon in the early 1990s, using a quite standard system of video technology.

[60] As in Second Life, or Xbox game Dance Central at http://en.wikipedia.org/wiki/Dance_Central_3 [accessed 15 January, 2015].

[61] We can find examples in the project *Senses Places* for second life (2011-2015), by Isabel Valverde which I have tried out myself in June 2012, or Clara Gomes installation *Me Myself and I* (2010).

be customized within mainstream mediatized stereotype forms of identity[62]. Virtual avatars, I argue, are neither self-friendly nor body-friendly; they tend to repress body agency, individual appearance and cultural difference. These issues are critically addressed in cyberculture theory[63] and contemporary performance artists are particularly sensitive to them; Shusterman is categorical in his assessment on "marketed" bodily appearance:

> Distracting us from our actual bodily feelings, pleasures, and capacities, such relentlessly advertised ideals also blind us to the diversity of ways of improving our embodied experience (Shusterman 2008, p.6).

The fact that with *Me and My Shadow* we can otherwise become present in cyberspace with real-time computer-generated full-body representations, is of main interest for dance practitioners. Projection in the metaphorical networked cyberspace is achieved with an empowering anthropomorphic figure; this simultaneously controlling and reflected body has central eminence and favours movement as personal signature. Such an overt condition encourages the exchange of utterances with aesthetic value and ambiguous meaning; it stimulates the exploration of dancing skills.

For a philosophical enquiry this artwork is a refreshing epistemic response to Benjamin's thoughts on the aura of the irreproducible, underlying his belief that "the presence of the original is the prerequisite to the concept of authenticity" (in Dixon 2007, p. 116)[64]. Although highly mediated, reproduced and transmitted, the original presence of the person-performer is maintained and, in terms of my argument in this study, reinforced with the shadow as a metaphor for agency and self- remediation[65].

Me and My Shadow also renews the challenge to the body/mind Cartesian split, which Dixon highlights to be perceived in connections between the physical and the digital virtual. Dixon provides examples from digital artists who have a performing arts

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[62] See Chapter 6 for a discussion of this sort.

[63] Balsamo alerts for Cartesian duality and gender stereotypes (in Bell & Kennedy 2000), and Turkle discusses the effect of computers and the Internet in definitions of identity (1996; 2011)

[64] Dixon has taken this quote from Benjamin's essay re-published in 1999 by *Illuminations,* London:Pimlico.

[65] The shadow appears differently and with various uses as a conceptual metaphor. Psychology discusses the shadow as representation of the self (with Jung and Freud, who associate it, in different ways, with hidden personality). In Shakespeare's phrases like "No, no, I am but shadow of myself: You are deceived, my substance is not here", or "Life is but a shadow" I read an association with less or misrepresentation. But the shadow as a form of re-embodiment, with more positive sense, is discussed in Theatre and Animation Studies with practices that use shadows in storytelling, of which Asian artists are renowned for (see Currell 2007 for various examples and discussion). I find this an interesting metaphor because the real shadow follows exactly what one does; it is a token for authenticity but, on the other hand, without skin, flesh, clothes or faces, it protects the individual and allows to mix in a safer way with the other.

background, which have contradicted such an understanding; however, he refers in the main to stage performances and installations where the protagonists of telepresence and self-remediation are digital doubles of the artists (2007, pp.244–263).

For the wider public digital mobility and self-remediation are still associated with splitting the physical and the virtual; thus Boddington's enthusiasm for opening the experience of full-body telepresence to the public sector is a remarkable techno-aesthetic commitment that Hyde has undertaken with what I judge to be great accomplishment.

Hyde's concern with the invisibility of the interface resonates with the principle of transparency, which Bolter and Grusin asserted to characterize virtual reality and facilitate immersion and illusion (1999). However, *Me and My Shadow* also conjoins the mirror metaphor that Bolter, with Gromala, has later associated with the theme of reflexivity (2003). The intent of teleporting the visitor "into a deeply poetic experience" (stated in the programme notes), stimulates the individual to become and be part of that experience, with his or her body, with great efficacy. Such commitment links telepresence with the aspirations of self and body awareness that underlie Shusterman's appraisal for the aesthetics of embodied experience:

> Heightened somatic consciousness can improve one's use of the self, (…) improved self-use surely includes a greater ability to enjoy oneself, with the soma clearly a key experiential site (rather than a mere means) of pleasure (Shusterman 2008, p.5).

The social experienced with the dancing body

Telepresence appears to follow a tendency to reinvent identity with disembodiment – when text or icons stand as symbolic representations – or sacrificing movement quality in favour of character construction. Essays on online theatre have emphasised how this affiliates with theatre practices, where the actor represents someone else (see Schrum 1999; or Sant 2008). For Sant, in the play with constructed selves he remarks "our identities do not express some authentic inner self but are the dramatic effect (rather than the cause) of our performances" (2008, p.75).

I would argue that the dance medium expresses identity differently. With the principle of corporeality, concepts in dance materialize with the performer, surpassing narrative and mimesis (Preston-Dunlop & Sanchez-Colberg 2002, pp.9–10). This principle influences the experience proposed in *Me and My Shadow*. However, while dance artists like Kozel search for closer connections between the moving person and

mediated communication with computers (2007), these original approaches are far removed from public domain. Social interaction online remains guided by the principle of 'simulacra'[66] and, as Turkle suggests, this affects the way we relate to others:

> We recreate ourselves as online personae and give ourselves new bodies, homes, jobs, and romances. Yet, suddenly, in the half-light of virtual community, we may feel utterly alone. As we distribute ourselves, we may abandon ourselves. Sometimes people experience no sense of having communicated after hours of connection (Turkle 2011, pp.11–12).

In such a scenario, although a critical statement was never obvious in either Hyde's or Boddington's discourse, I find *Me and My Shadow* to be counter-cultural. The artwork diverges from the fashion of social interaction in cyberculture in two major aspects: 1) by stimulating movement-based social exchange it appeals to body awareness, foregrounds an ideal of authenticity and rejects disembodied or uncanny representations; and 2) unarmed with a priori referential behaviour the work motivates free choice of movement expression and discards codified routines of normative and widely disseminated behaviour. It would be misleading to congratulate the work just for its capacity to make dancing online together possible. Although that is what it does, I find that how they did it is also outstanding.

As Thomas avowed, "We come to know our society through the rules and rituals surrounding the body and the prevailing societal attitudes towards it" (2003, p.21). Novack's essay on "Movement as Culture" (Novack 2010) helps to understand my idea that *Me and My Shadow* precludes atypical social performance in cyberculture.

In the 1970s Contact Improvisation was a collaborative interaction that Novack describes as "more akin to social dance situations than to theatre dance classes" (2010, p.170). She relates this dance with values and concepts of Rock-and-roll such as "self-expression, freedom, egalitarianism, spontaneity" (ibid) that mirrored cultural and political changes in the 1960s that shaped a more democratic USA. This image of the self and of social dancing, Novack remarks, was replaced, in the 1980s by a presentational movement style – disco dancing - that focused outwards, to a single direction, and involved "encoded planning, control and heterosexual activity to a much greater extent" (p.176). This model is still reproduced in the online platforms that exert social interaction with dance; users perform pre-determined and extremely simplified

[66] I am using simulation and simulacra as discussed by Baudrillard (1994) which mean different forms of self-remediation. Baudrillard describes simulation is a model of the real without reality, which I associate to the body representation of *Me and My Shadow*, and simulacra he defines as a copy without original, which I associate to the synthetic anthropomorphic avatars that cannot reproduce real-time movement.

choreographies, which reflect dominant and single viewed discourses, and recover to the fourth wall the top position in the space hierarchy[67].

Me and My Shadow actualizes the values that Novack highlighted, so I argue, because it was conceptualized as "a dance project" (as Hyde explained) and involved an artistic, contemporary and collaborative making process. Unlike models that exploit alienation and irresponsibility through stock characters, here the self can express freely with dance as a means of communication with each other; this public space is perceived as a site to share creativity and individual users take responsibility for what is the overall aesthetic outcome of their engagement (fig.7:14).

Figure 7:14 – *M&MS,* School group visit to the Portal in Brussels and simulation of four portals connected[68]

In our conversation Hyde was nonetheless sympathetic with the sceptical institutions: he too questioned the interest of dancing with distant others "if there is someone just

[67] This is a standard in the theatre and the TV studio that associates with the passive spectator; Cunningham has deconstructed this idea with much of his choreographies, as formulated in his famous proposition that "there are no fixed point is space" (see Cunningham with Lesschaeve, in Carter 1988).

[68] Picture of the installation's entrance (courtesy of Body-Data-Space), and screenshot from documentation movie at https://vimeo.com/62243538 [accessed January 2015].

here I can dance with". But if we frame this work with Shusterman's pragmatic philosophy and the results of Novack's analysis it not hard to see why *Me and My Shadow* accomplishes a value of virtual art underlined by Popper: to assist individuals or communities to cope with the flux of information and identities that characterize our present (2007, pp.4–5). It is not surprising therefore to note that Boddington emphasised that it was important to "present the project for its value as a social experience" and moved her target audience to the public sector[69].

Aesthetics of telecommunication

Hyde stressed in interview that "the participatory is the most important aspect of the project"; the work is closer to an instrument than to an objective piece, which is how, for him, interactive artworks should be. By emphasizing the social and the unpredictable, I conclude that Hyde and Boddington evade their peers' judgment based on aesthetic criteria that cannot, finally, measure the worth of their practice. Most people in the wider arts sector, Boddington affirmed, "would not understand what the project is"; moreover, she added, experience is crucial for knowing: "nobody gets it until they have done it" – a perfect example of epistemics at work.

In my case, however, committed to aesthetic evaluation and aided by the tools of direct experience, Thomas' intrinsic and extrinsic analysis, Popper's techno-aesthetics and Shusterman's somaesthetics, I maintain my conviction that this complex practice can be judged as an artwork and within the frame of dance studies.

Manovich has pointed out that "By foregrounding telecommunication, both real-time and asynchronous, as a fundamental cultural activity, the Internet asks us to reconsider the very paradigm of an aesthetic object" (2001, p.163). He suggests that telecommunication can become an aesthetic subject and therefore aesthetic theories must expand to address these new situations. For the subject of enquiry here, as well as the discipline of dance, *Me and My Shadow* is a striking and useful artwork. First because it demonstrates a body-friendly and movement-friendly migration, which allows us to deconstruct the resistance that dance offers to digitization. Secondly, because it reinstates, in the mixed reality of ubiquitous technology, the democratic

[69] The young people I see in Portuguese clubs hardly dance and the estrangement with their bodies is noteworthy. They don't know how to use them because they are sedentary, physically illiterate, and oppressed by pervasive codes on body looks and body movement. This, on the other hand is a foreign reality to contemporary dance professionals, who live with body techniques and artistic practices of emancipation and resistance.

paradigm precluded by Postmodern dance[70]. Finally, this digital artwork operates well with fundamental concepts for Performance Studies – such as performer, performance, liveness, presence and event - showing that they can be reused to analyze artistic practices that emerge with computer technologies and in electronic networked environments.

[70] Initiated in the USA with the Judson dance Theatre and followed in the work of Merce Cunningham and in Europe with Pina Bausch, William Forsythe, Mark Tompkins among others.

8 Chapter 8 - Conclusion

The knowledge about dance performance in cyberspace gained from the analysis of three single examples has allowed me to make a number of generalisations about the ways artists approach the technologies and aesthetics emerging within and alongside cyberculture, asking to what extent these are pragmatic illustrations of abstract concepts, and whether they can be taken to be representative of a wider scope of practices, hence allowing me to draft the contours of a new discursive field. This final chapter revisits the aims of the enquiry, summarizes the research findings, assesses the methods from the perspective of the perceived needs and highlights the expected contribution to new knowledge in the fields concerned.

8.1 Wishes in context

What I proposed at the outset of this research undertaking was to pursue a critical investigation into practices that have been instantiated in cyberspace, using this technological and augmented reality as a site for the creative development of dance artworks, where an emphasis was placed explicitly on the discipline of dance itself.

This subject was identified as a relevant source for research enquiry because 'cyberspace' – already seemingly an old-fashioned term of the 1990s[1] - is still representative of contemporary human life: digital technologies are pervasive in our physical as well as critical/reflexive settings. Either operating with the visible logic of hypermediacy (emails, social networks and chat-rooms with symbols, images and text) or operating with immediacy and immersion (in computer games and synthetic space with 3D graphics) many of us are accustomed to having at least some part of our lives 'running' in virtual environments, and the younger we are the more we do so. The purpose of this research undertaking was to understand what impact this context might have in the current production and experience of contemporary dance.

Accordingly this study aimed to identify and characterize new models of composition and instantiation, which may foreground a newly developing aesthetics and increase both audience outreach and career opportunities for the dance community. Also encouraging was the perception that dance professionals can convey sensorial and

[1] In Chapter 1 the use of this term in this thesis was justified and in Chapter 2 the term was reviewed with different authors and perspectives (as in Bell & Kennedy 2000; or Dodge & Kitchin 2001).

affective experiences as well as new critical perspectives to a wider community, if their work is analyzed and theorized. Such new perspectives could target a specialized community – peers studying cyberculture, human-computer interaction and new media arts – or an informal and undetermined one – cyberspace travellers, virtual reality inhabitants and computer device users. Moreover, on the basis of my own expertise in dance and in technology, I sensed this to be a 'new' subject; it was new because of the techno-cultural context that enables its development and because the area is under-developed both in dance scholarship and practice.

8.2 Field signs

I have argued that web-based dance is one of the typologies identified as belonging to dance performance in cyberspace (a term that was developed on the basis of this research undertaking). The first example of a web-based dance I encountered dated from some 20 years ago; but unlike dance-films for example[2], interactive new media dance artworks have only developed tentatively over the past twenty years, for reasons I have touched on in earlier chapters.

Rather than experimenting with screen-based and new media artworks, my research suggests, dance performance artists have privileged the integration of digital technologies into their live/physical artworks; the existing cases designed for cyberspace are, as I have shown, heterogeneous and sporadic. Consequently, while the stage of the theatre and the screen of the cinema for example, have venue-frames that inform the process, aims and values relying in dance, practices that instantiate with cyberspace are deprived of such referential boundaries. For that reason, as we have seen, they are also difficult to identify, characterize and evaluate. These observations have emerged from my survey in the field, where I have searched for artefacts and literature that could provide an overview of the expression of this practice in the current professional and academic dance sectors[3]. I asked, above, what justifies the marginal status of existing practices, despite their being referenced in a number of studies, which suggest their potential interest to the dance community and the sorts of contributions they might make to enquiry in other sectors.

What the case-studies and literature review have together suggested is that mediated dance and virtual performers contradict the perceived nature of dance as a

[2] Dance films in many styles and under the umbrella term of Screen dance are an area presently well developed in terms of practice and theory (see for example Dodds 2001; Whyte 2007; Rosenberg 2012)
[3] This conclusion was a result of the mapping of literature and practice completed in Chapter 2

body-based and ephemeral art – a perception that informs the bulk of theories in dance studies; dance naturally resists digitization, not just because performance artists tend to be co-present when they share their work but indeed because it is highly demanding in technical terms to make new media dance operate effectively as each of the case studies set out above has demonstrated[4]; additional skills and experience are needed, which few choreographers and dancers have already acquired; negotiation with unfamiliar technological and conceptual references and indeed, artists or technicians from other territories is inevitable. Cyberspace is a context with which dance, as a contemporary artistic practice, has few established bonds: cyberspace is a public space used primarily for information, communication, commercial services and entertainment; disembodiment and character-play are ruling standards, and artists are likely to have uncontrolled contact with unexpected visitors who 'play' with their work, whence the issue of aesthetic control, as we have seen. Anxieties regarding loss of disciplinary identity, authorship and professional status are therefore not surprising. In fact theoretical revisions often refer to artistic practices with new media and digital technology as hybrids (in any discipline); they also tend to shift analysis towards audience experience and they predominantly value engagement with wider sectors of the population and development of critical perspectives[5]. These are signs of postmodern thinking that relished deconstruction of disciplinary and social boundaries, questioned the relevance of expert processing and has tended to deplore the notion of masterpiece art.

8.3 Resist resistence and keep moving

The problems summarized above are crucial to any attempt to test the relevance of this subject and informed research strategy, methods and design (in Chapter 3), with the concern of addressing visible tensions in the field. In the light of these difficulties I have assembled a set of criteria in order to identify the qualitative and technological specifications that should allow us to approach the artworks of this study, outlining some of their characteristics and carrying out their analysis in quite specific terms (in Chapter 1 above). In the design of this framework I needed to consider some of the implications of using and juxtaposing these specific concepts[6].

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[4] In Chapter 1 and Chapter 2 I have cited authors that have discussed resistance to digitization such as deLahunta (2002c) Birringer (2004) and Popat (2006).

[5] These conclusions result from the literature review distributed between Chapters 1, 2 and 4.

[6] The hexagonal frame juxtaposes qualitative criteria – dance, professional, art – with technological criteria – cyberspace, new media and interactivity.

I would identify the delineation of this framework as a significant finding of my research, which contributes to the identification of characteristics, boundaries and connections of a field of study both in terms of objects of analysis and the literature decisive for its development; such precise and yet flexible delimitation is the result of systematic enquiry and continuous challenge to common sense or established understanding: these in turn can only be undertaken once we – practitioner-researchers committed with testing and disclosing the scientific value of our empirical knowledge - engage with the frame of scholarly research and its requirements of methodological consistence and statement validation. Besides its perceived usefulness for the work of other scholars in the future – particularly those interested in the new and interdisciplinary - the criteria framework became an essential reference throughout my own research undertaking: it allowed me to distinguish the objects of this enquiry from other creative activities in cyberspace and also dance models, but it remains open to a variety of practices that may be associated in the future.

The hexagonal criteria frame was also indicative of literature sources, which were assembled as an interdisciplinary theoretical framework that was often used notionally, rather than systematically: sometimes in an explanatory mode and on other occasions it provided interpretive lenses. The review of theoretical contributions generated by researchers who had previously studied the technological and philosophical implications brought to the making of dance and performance by the context of cyberculture, is another noteworthy outcome of my study. Their conceptualizations and critical or historical accounts are essential to understand the state of the art; by engaging with them I have underlined the usefulness of that previous research in setting out the bases for a field, which is already established but generally unknown to or unacknowledged by the wider community, of dance and performance professionals, and Dance and Performance Studies, but also to those more widely concerned with new media art.

Studying dance performance in cyberspace as a migratory process between the physical and the virtual, (which was introduced in Chapters 1 and 3 above), facilitated my engaging dialogically with artworks from other genres and modes (such as live or performance or dance films), and with concepts that return regularly in other writings. These references were fundamental to my discussion of what is in effect a new subject and, as a result, I was able to determine what attributes and constituents could be identified in theoretical terms as ‘belonging to’ the dance medium, and to extend the

conceptualization of dance and performance by considering what they appear to be when reconfigured by new media.

Case study research design, which begins in Chapter 5 above, was fundamental to resolve complications with definition and with the very sparse number of works available, which have affected this study. Secondly, they have ensured a degree of originality and validity in the research results. The cases enabled characterization and evaluation to be undertaken on the basis of what I have called 'epistemic objects' (or objects of knowledge), and my narrative concerning these particulars has disclosed how the artists dealt, in my judgement efficaciously, with the challenges underway: managing between technology's potential and constraints, remediating the dance medium, enabling interactive participation and affective engagement, and articulating issues from cyberculture. The works, I have argued, provide local evidence of the speculative conceptualization that informed the beginnings of this research project; in order to examine and evaluate them I devised an original model in Chapter 3, which combines dance analysis with the concepts of techno-aesthetics and somaesthetics.

With the design of a model itself, I have been able to contribute to the existing practice of dance analysis, rediscovering its potential to address contemporary artworks, which go beyond the conventions of creative process, the economics of production and audience transaction that have tended to inform concert dance and dance films. While these artworks interrogate new technologies and issues arising within cyberculture, they are also relevant for Dance Studies because they reflect expert-making in dance performance in a new techno-cultural context and they provide insights into themes that are dear to our scholar community, such as the meanings of body representation, performer agency and kinaesthetic perception for contemporary society. I have created a model that allows us to analyze the cases studied because I needed to sustain my argument regarding their evaluation in terms of aesthetic qualities; however, by applying the method systematically to the three cases studied, I have provided a test to the model's working in itself. I have, similarly, aimed to determine a flexible framework of criteria governing definitions and delimitations of a field of study and to identify its objects; I was concerned with demonstrating the efficacy of a method of analysis, which could comply with the instability and newness of this subject. My project therefore has gained a methodological stance, which can be said to constitute a contribution to a developing research practice in the fields concerned – directed, that is, to new media artworks and particularly those that have disciplinary affiliation with dance.

Pursuing a strategy of legitimization with in-detail aesthetic evaluation, I have set out to extend the role of expert spectatorship in scholarly research and this particular focus justified my reviewing precisely which values are engaged in the making and use of these practices: sometimes those identified with live dance remain pertinent and at other times criteria applied to virtual art and interactive design were more productive. The contribution to knowledge that this work seeks to make is also distinctive in its assertion of the need to recover an 'aesthetic turn' in dance research: with or without the digital technologies involved, on stage or on screen, Dance Studies as a dominant discursive formation currently barely focuses on aesthetic evaluation, despite the fact that this sort of evaluation is fundamental to the makers of new work and to their audiences' engagement with it. This observation again relates to the postmodern paradigm, which I have argued cannot be dissociated from a study on cyberculture, contemporary art and new media technology. Yet rather than deconstruct the phenomena concerned, this study needed to construct its object. Hence I identified this as a constructivist project from which generalizations can possibly be made, although conclusions are tentative and sometimes largely speculative, despite the pragmatic use of the method and the knowledge generated.

8.4 Evidence in the cases

In Chapters 5, 6 and 7 I demonstrated that a number of overarching questions seemed to frame interest in the case studies because they were able to provide evidence about the transfer and transformations involved with migration between territories. Indeed they supported my argument in Chapter 1 that innovation (in cyberspace) does not have to equal dissolution (of dance itself). The case studies responded pragmatically: certain aspects readily transfer – the elements identified as constitutive to the medium of dance are articulated in all cases - and other aspects also transform; the performer's body, for example, is fragmented in *96 details*, transposed in *Soi Moi* and reflected in *Me and My Shadow*; time and space are compressed and extended. While outreach is potentially wider than it is in the case of live performance, in order to 'travel' and be accessible in navigable space, *96 details* and *Soi Moi* are small-size works (1-3 inches performers) and have short sequences (30 seconds to 2 minutes, sometimes with looping options). Motion capture, data weight, and broadband determined the ghost-like appearance of the performer in *Me and My Shadow*; while we may criticize the loss of the marks of individual identity in this work, when we review it through the lens of critical theory

this characteristic was interpreted instead as a liberating and innovative possibility for a shift in agency and self-representation in virtual environments[7].

By facilitating a dialogue between authors writing about dance, performance and new media, in Chapter 4 I argued that performance remains crucial in this context[8] and later I verified this assumption with the case studies. Despite their computer data substance these artworks are 'live' and 'present' for several reasons: their time-based nature, their interactive and experiential condition and their dance orientation (being a reflex of humans moving aesthetically is significant), all contribute to our understanding them as performance; they are always ephemeral and they are variable event artworks[9]. To see the 'event' again, we must record it, and after that what we will see is a recording of the 'show', not the actual show. Such a situation plainly distinguishes these artworks from dance films[10].

From the sum of the analysis undertaken with the three case-studies (Chapters 5, 6 and 7 above), I observed that interactivity as a formative condition of new media art imposes creative and production challenges and embeds new ethical stances in the relationship between artwork and audience. On the basis of interviews with the artists, I was able to discern that the artists welcome a non-specialized creative partaking, which appears when the virtual artwork is actualised and translates into a real aesthetic experience and exchange; to do so, they lose 'control' to varying degrees as each case individually demonstrates, but the artists interviewed clearly desire the audience's subjective engagement, which they facilitate and on which their artworks concretely depend in order to exist. I understand *Me and My Shadow* and *96 details* as more democratic, in their way of facilitating play with movement, choreography, image and sound; *Soi Moi* and *Me and My Shadow* on the other hand, are more reflexive on self expression and body awareness; and *96 details* and *Soi Moi* are distinctive in their way of integrating the dance artwork in domestic space.

As I have sought to demonstrate, in each of the three works the artists have customized commercial technologies, refashioning their purposes and invading the code with indeterminacy and creativity; they enabled poetic and playful experiences where body and mind are intensely connected and present. These cases therefore contributed to

[7] The analysis of cases is reported in dedicated chapters: Chapter 5 - Cie. Mulleras/*96 Details*, Chapter 6 – n+n corsino / *Soi Moi*, and Chapter 7 – Joseph Hyde with Body>Data >Space – *Me and My Shadow*.
[8] For the discussion about the remediation of the dance medium and the validity of the term performance with new media I engaged with writings on dance (such as McFee 1992; Thomas 1995; and Preston-Dunlop & Sanchez-Colberg 2002) performance (for example Schechner 2002; Auslander 2008; and Kozel 2007) and new media (Manovich 2001).
[9] 'work-event' is a designation by Rubidge (2009).
[10] This argument was also constructed by Bench (2006a).

the illumination of concepts and conundrums that I had previously identified in the literature, and they provided the bases for either agreement or disagreement with theoretical arguments, namely about disembodiment, liveness and agency.

In relation to other artworks devised with critical agendas[11] these cases might appear to be overly concerned with technological amenities; however these innovations, I have argued, can also be viewed as counter-culture. On the one hand they transfer the sensibility, values and knowledge of their artistic heritage into the commodities, disrupting stereotypes of utility and representation in the information society and mass media culture; on the other hand they diverge from the trends perceived in the disciplinary traditions from which they emerge, questioning institutionalized conventions. It seems to me that this is a difficult position for artists to adopt; while pursuing aesthetic interest the artists are constantly negotiating between technological possibilities and limitations, but because they are not using their knowledge to draw critically on underrepresented technology implications[12], these artworks may be deemed to simply be playing with conventions and technology. Nevertheless, as we have seen, close inspection with interpretive frameworks shows a valuable techno-aesthetic commitment[13].

Me and My Shadow aligns with principles such as access and participation, decentred authorship and inclusion of pluralistic views, which were celebrated in the inventions of Hypertext and the World Wide Web, and which have been associated with post-structuralist discourses[14]. These principles, also underpinning *96 details*, emerged in a context where the boundaries between high and low art, already questioned by Postmodernism, were revised again when digital technologies intersected artistic production with values from pop culture and mass media. The Corsinos conversely have definitely challenged the established institutional dance frame: their work appears to be quite 'traditional' in terms of remediating the elements and systemic functioning of dance, but this is probably the most radical case; by setting the 'venue' in the I-phone, *Soi Moi* crossed the boundary of the utility and deployed any sort of frame that differentiates this artwork from a game.

As I have observed above, the fact that these works do not have a conventional venue-frame, which might assist and legitimize their inventiveness, means that the

[11] An argument supported with cases in Internet art and digital art studies (see Greene 2004; Paul 2008)
[12] Wilson's introduction to *Information Arts* (2002) explores these issues in detail.
[13] An argument that is developed by Popper (2007) in relation to practitioners making virtual art, which I engaged with methodologically (in Chapters 3 and chapters 5, 6 and 7, that analyze the three cases).
[14] In Chapter 5 these enquiries were referenced with several authors (such as Nelson 1987; Landow 1992; and Berners-Lee 2000).

artists have both to pay attention to the issue of 'making dance work well' and to design the interface that works effectively for an audience - which in cyberspace is very difficult to target or predict. For performance artists, who tend to be present when they share their work (even if they are virtually co-present) and tend to have had physically passive audiences, the above-described conditions may be revolutionary, but there is no ontology here[15] in Auslander's use of the term. This is essentially a techno-aesthetic issue for practitioners with expert-intuitive knowledge to address SEC4; dance performance in cyberspace is a new possibility, which I have argued throughout this dissertation, is compatible with other understandings of what dance is.

8.5 The cost of being involved. Is it worth it?

The absence of patterns in this field or the puzzled questions of my colleagues and friends often urged me to question the viability of this research topic. Together with the difficulties of dealing with a hard to define and rare subject, of joining different disciplines and perspectives within a coherent research approach, dealing with the spectre of obsolescence was a real issue; as Wilson observed technological art "is a moving target" (2002, p.9). In the same way artists are confronted with the ephemeral innovation of their tools and work, it is quite stressful for the researcher to settle arguments about an area that changes very fast, within a field where it is easy to miss out something important. Bauman defines this era as Liquid Modernity: a culture of accelerated change and continuous flux of materials and ideals, repeatedly traded and out-fashioned, where "there is no centre around which things could condense, solidify and settle" (2006, p.122). Redundancy, Bauman warns, is a spectre that "hovers over the liquid modern world, over its denizens and all their labours and creations" (p.124).

Ubiquitous technology has not ceased to grow and penetrate our lives; mediation, surveillance and control of ideals and desires[16] are overwhelming our experience of being human. A way to defy this is resisting digitization and updating Phelan's declaration that "performance's independence from mass reproduction, technologically, economically, and linguistically, is its greatest strength" (1993, p.149). Another way is to get involved and digest, review and reform these new technological

[15] This is the argument provided by Auslander (1997), which informs this thesis and the discussion about the term performance in Chapter 4.
[16] This is the argument of techno-determinism referenced in Chapter 3 (see Bell 2006a).

products, eventually 'recycling' the message that McLuhan (1994) saw as entrenched in the medium.

Dance artists and scholars will always be in a marginal position in relation to the sectors where the money and the mainstream are; but as the Mulleras demonstrated (and Hyde), if the enquiry is not solely about the technology but *with* the technology, a lot can be done with 'low tech' and 'old tech'. We must also remember that many dance practitioners have been pioneers in using technology; that the body, already a hot topic among social sciences and humanities since the 1980s, has gained importance as well in computer sciences in the new millennium. In her writings on post-humanism, Hayles was critical about the overblown body/mind split in the early 1990s: "the great dream and promise of information is that it can be free from the material constraints that govern the mortal world" (Hayles 1999, p.13); but later Hansen recalled that (2006), information technology is moving from the virtual reality paradigm preannounced 30 years ago to the 'body friendly' mixed reality paradigm. This research has enabled me to highlight important perspectives that the fields of dance knowledge may convey to cyberspace, thereby underlining the importance of exploring the potential of a discipline-specific enquiry. Cyberspace in turn – as this study has made clear - brings dance artists closer to critical issues of their time and thereby justifies the challenge of engagement.

Manovich was well aware of the spectres of misunderstanding and redundancy when he published *The Language of New Media*:

> Does it make sense to theorize the present when it seems to be changing so fast? It is a hedged bet. If subsequent developments prove my theoretical projections correct, I win. But even if the language of computer media develops in a different direction than the one suggested by the present analysis, this book will become a record of possibilities heretofore unrealized, of a horizon visible to us today but later unimaginable. (Manovich 2001, pp.7–8).

14 years later we know the extent to which Manovich's work was widely informative and inspiring for many subsequent studies, including my own. This research undertaking aims to encourage future practice and further theoretical writing, but a warning is also due: cyberspace *is* inhospitable for 'dance beings'. Do we really want to 'go there'? Have we got the stamina and determination? As Manovich observed, this is a "hedged bet".

By analyzing and disclosing the intrinsic value of the three artworks that constituted case studies I have contributed to understand their epistemic properties,

which are now available for further research, with or without the frame I have developed for my study and its overarching argument. The future of dance performance in cyberspace depends on the accelerated change of the technologies of information and communication and, In 2015, we know that, over the past twenty years, new media have not substantially affected the way dance is made and experienced as an art form. The process entailed in this study to delimitate a field, choose research methods and adopt interpretive perspectives constitutes, nonetheless, a clear research outcome: the complexity of this subject and its richness in knowledgeable terms has been understood, documented and can be transmitted.

By extending expert spectatorship with the concerns of validity from qualitative research, I explored tensions between objectivity and subjectivity that trouble aesthetic evaluation; and with in-depth analysis and contextualized reasoning I provided coherent results for dance studies. But acknowledging aesthetic quality is also essential to claim for resources that enable the professionals to keep working, i.e. to their survival as such. My hope, in this case, is that my study of the phenomena concerned will encourage other researchers and artists to pay more attention to an underrepresented subject, certainly within the dance community of scholars and practitioners, but also in the general frame of a contemporary art that enquires and develops the potential of the digital-virtual, in both technological and cultural streams.

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Dance Performance in Cyberspace
- transfer and transformation

Paula Gouveia Varanda

Appendix section

Appendix 1

Appendix to Chapter 5 / case 1

***96 details* - Cie. Mulleras**

Interview with Didier Mulleras and Paula Varanda, July 2010
Information provided in the company's website
Press articles cited in the thesis

Appendix 2

Appendix to Chapter 6 / case 2

***Soi Moi* – n+n corsino**

Interview with Norbert Corsino and Paula Varanda, July 2010
Information provided in the company's website
Press articles cited in the thesis

Appendix 3

Appendix to Chapter 7 / case 3

***Me & My Shadow* – Joseph Hyde**

Interview with Joseph Hyde and Paula Varanda, August 2013
Interview with Ghislaine Boddington and Paula Varanda, August 2013
Information provided in the websites and process blog
Press articles cited in the thesis

Appendix 4

Conferences attended throughout the research and paper abstracts

Dance Performance in Cyberspace
(transfer and transformation)

Paula Varanda

Appendix 1

Cie. Mulleras / 96 details

Section 1 - interview with the company director Didier Mulleras, July 2010

Section 2 - summary of information displayed on the company's website

Section 3 - collection of press articles

1 Section 1 - interview transcript with Didier Mulleras

This interview was done on the 13th of July in the studio of the company in Béziers, France, with Didier Mulleras, the choreographer and founder of the company, who is co-director together with his wife Magali Mulleras. The interview was conducted as a semi structured informal conversation, of approximately three hours. After talking about general characteristics of the company, I proposed discussing specific artworks following a number of topics such as: modalities involved, technological and thematic concern, creative process, body representation, choreographic layers, interactivity, conceptual issues, as well as the challenge and worth of getting involved. Didier agreed with this approach in our talk, as he believes that their work is the best way to understand who are the artists and what are they aiming towards.

1.1 Characterization of the company

This company was founded in 1990 in Béziers, a small town in the south of France. We are a small group, where the two directors also perform, choreograph and teach, and we have four other collaborators: two dancers, a multimedia technician and a manager. We have different tasks inside the company to accommodate our needs and a short permanent team.
We wanted to establish a professional and regular offer of dance classes and performances to the local population. But we also wanted to have international visibility as a company with distinctive and influential choreographic processes.
Our pieces are more like projects, normally completed across two years of research and composition, and three more years of performance and presentation, for touring and development.

1.2 Working with new media – Why, when, what, skills

This connection started at an early stage of the company's career; I (Didier) am also a music composer and I'm naturally driven to work with machines. Before using the web we were already experimenting with video and music in our stage works.
I wanted to use video (like dance films) and Internet as creative tools to explore the possibilities of world-wide dissemination; and since 1998 the company's projects have always integrated interactive and multimedia technologies. From de beginning I wanted the screen works and stage works to be connected. Ensuring a strong link between the real experimenting body and the represented body, as if there was a parallel composition (*écriture*) of the same work, experimenting how dance and music, body and sound, express and combine in different media.
The projects Mini@tures, Invisibles and 96 Details are the foundations of the company and have been fully explored and fully reviewed in the international circuit and with a large audience. With the pieces we can also track the evolution of the technology, for example in the way interactivity is involved. There are big differences between Mini@tures and 96 details (which is fully interactive) and this requires a new set of rules in the composition, in conceiving and writing the project.
Regarding my skills I am not a film director, but I have ideas and I know how to find tools; then I try out things and arrive to results that satisfy my initial enquiry. I also have no education as a computer programmer or designer, in the technology side I am self-taught (*autodidacte*), all that I now is what I have found out though my own searching and experimenting.

When I find a tool and try with it, if I see it can respond to my needs, to what I want to do, I follow that lead forward; when the work with those tools starts being very complicated and unpleasant, I put them aside and try out something else.

1.3 Project discussion - Mini@tures (1998-2001)

This project was made particularly for the web with a clear artistic intention. I did not want this to be a commercial project but instead a space for creation and experimentation of an idea of mini stage (*miniplateau*x).
At the epoch there were lots of technical restrictions, that influenced the reproduction of dance on a computer. Everything was very slow: the signal, the processors, and small: the memory… So we were forced to make very small movies. (in frame size but also in duration). We worked a lot, creatively, in order to bypass these technical restrictions. The Web, as some sort of personal TV, it was a miracle at the time.
We started the website for this project and the project started for the website. We were touring and we wanted people to able to visit us after seeing us once in the stage. We were producing these micro-films (*micro-metrages*) so that people could see the dance online.

1.3.1 Working with dance and the body:

I wanted dance to be present, the bodies and movement had to be present, strongly present. But due to the technical restrictions, this had to be a light and short material that could be easily visible.
When the body is transported to another medium, we make changes on the body. And when we started, we realized a lot would not work. We had to make a resolution of 8 frames per second and make a movement that was slow but could be seen. But this was when the universe of the project was born: small, short takes, small movements, light atmosphere.
We could then explore the idea of human scale, like the anthropometric films of Lumiére, but we wanted to work more on the choreographic than the cinematographic.

1.3.2 Neutral space

We chose the white and neutral background (in the first films) because we wanted to focus in the dance; but this came also from necessity and restraints in the use of colors. For example, a long velvet back curtain (*drapeaux)* would not work for the filming in small resolution. The skin and the black costumes needed to contrast with the white background.
Since we could not work on a big screen there was not much area to develop and idea of space. So we used very small spaces, where the body could not really move too much. And we always kept the camera fixed, which would set the performing space limits.
Instead of a space idea we worked on visual constructions: the lines, the shapes, and in the later sections, the photographic spaces.
All was very flat, so we looked at how can we take advantage of this and enjoy it? So we thought about postcards, something that could figure in a hand, on the size of the hand.

1.3.3 Conceptual ideas

We would take maybe three weeks just to find what could work with a particular technical set up. And from there we developed a space of constraints, conceptually.
The first group of miniatures was a success. And at some point I wanted to find a theme for 10 different episodes. Adding a new element in each episode.
First it was just the body, with no décor or other elements; then we added the big body parts in dialogue with the small bodies; at some point we went outdoors - like the vegetal episode in greenhouses and gardens episode - we wanted the performers to take some air.
This evolution had to do with the technology developments as well. And then we started to face new problems, because the possibilities for image editing would change a lot. We wanted to take our clips to different places, and have special effects. At that phase after effects software was already available.

1.3.4 Choreography

Our creative process for the small films was informed by and idea of choreography for the medium (of the web) and not the idea of camera choreography that is used in many dance films (with the changing point of view).

Choreographically speaking this was a simplification process to an extreme. But we did not get bored, since there was no dramaturgy we could really have fun in the discovery process, facing the difficulties, the restrictions and finding new things as solutions. It was important not to be pressured by funding commissioners.
When we went on stage it was interesting to get confronted with all we had made to the small computer screen but now this material had to go on stage (much more space and three dimensional) on a live performance, with immediate audience reaction.
In the editing suite we worked with acceleration, reverse, and other effects, and this then influenced our live movement; we were adopting postures that we would not have done if we did not go through the research with the technology. It was really interesting to have this project made live. The things that were most difficult in the screen were easier now but we had to be in complete synch with the images, while working without a mirror. The performer on screen that we were dancing with had different rules regarding gravity and scale, for example. I find that the numeric experience pushes the real limits of the body.
Yes we had lots of the choreographic layers; first on the studio to film, but in the editing process I had to go image by image to clean the background and this gave us ideas to deform, re-organize the dance that was filmed.

1.3.5 Determination and changes - from idea to concretization

We kept the challenge of working with the unknown in the progress of the different episodes; these were majorly technical challenges that led to a lot of discovery. At some point we knew what was choreographically possible and we knew that what was possible with the early technologies gave a kind of result that had to be maintained so the whole project would work with the same kind of idea.
During the live tour I had lots of ideas emerging… but from there we kept the idea of making miniatures on tour. Only the frame, the location, was changing; the ideas for the choreographic scores did not change a lot.

1.3.6 Technology, collaboration, skills

In the beginning we had a video 8 analogue camera and in the last phase we were already using digital mini DV. A domestic / family camera model. For the music I used e-jay, a computer for kids to do music; its a very low tech machine, that costs around 10€ and that I bought in supermarket. For the editing I used Adobe Premiére and After Effects software on the desktop computer.
I am fond of the do–it-yourself approach, where the work is free from high costs and conventional procedures, a kind of art craft and bricolage. I had in mind and idea of *Traffic d'images.*
Regarding the team and collaborative processes I had the help of Nicholas who is more versed in computers and also did the lights. We use collaboration more when we already have an idea to work with, after writing the project, for a final phase of making things happen. We were already working as a multitasking team.

1.3.7 Outcome of the investment: visibility, commissioning and access to a wider audience

Right from the beginning is was very evident that this was a successful choice. We started in December 1998 to show the first clips of *Mini@tures* online. Three months later we were receiving emails from the audience, and there were programmers wanting us to travel, asking for a stage production. This really allowed our work to be seen and known, by audience, scholars, and others. It definitely helped the company to continue in professional standards and its international visibility.
Mini@tures was very influenced by the idea of giving – it was net art and not net commerce. We gave out (all was free access) and we received back in a large scale. There is something mystique here, that I like, that goes beyond capitalist logics and industry logics which are also linked to web, IT, computers, etc. We had a very strong sharing experience; people say net is breaking people's relations, links… and we had the contrary experience.

1.3.8 Advertisement and Feedback

We know that a lot of our watchers online were people that never saw contemporary dance before, and when they saw this web page project they liked it and went to see stage productions. When they comment n the website we used to tell them, that after being by themselves in their room, seeing us at their computer, they should go to the theatre.
We have counters, so we could know how many people were watching and from where, if we needed. And we could see how long they remained: in average 15 to 30 minutes. Being able to track number of visitors, time of playing in each visit and access location is knowing, by numbers, various facts about the outreach. We don't really do it, but we can control who is our audience if we want.
A lot of advertisement was done by the press; like for example the French magazine *Télerama.* They made a big article that triggered the process; after that lots of other journalists and reviewers were interested and we had quite a few interviews in the press and TV programs. The site address was always referred. It was quite

important that when people go to the site they go to see a net-art project, and not a part extract of a live project.

1.3.9 Concepts and thematic focus

We were clearly exploring relationships between the big hand and the small body; an idea on the human fragility: what was our position in relation to the machines? What can we do about all these machines? What are we in relation to that? So we worked with speed, fragility, manipulation, like puppets, but we tried to express that the body wins in the end of this dispute. This is clearer in some clips than others.
In the project there is a will to say that the body is front row, preponderant, I have always wanted to privilege this idea!!
Some people told us this project was better on the web version than as the stage version. We could actually remake miniatures now, for a better resolution, and size, taking advantage of the much better technological conditions of the present, but I think that should stay like that because it talks about a certain time. On stage we always transform and adapt, but in the web we want to keep it as it is.

1.3.10 Conceptualizing dance and the choreographic with technology

Before these types of machines (computers) were available, we all used to attribute dance to the human experience; but that changes with machines. I still want to keep dance visible in the machine time; the main centre of the dance is the body and in our company this is very strong throughout the whole work.
The Corsinos for example, using motion capture somehow remove the flesh in the dance, but it is still strongly embodied, represented by the body human figure, you feel it is there from beginning to end. I am totally against the idea that the machines bring cold and inhuman expression; dance people like us strongly work the other way around.

1.4 Project discussion – Invisible (2002-2005)

With this project I wanted to make short films that could be projected in screen-dance festivals. This was much more of a cinematographic work; I wanted to move on from the abstract of *Mini@tures,* explore the possibility of an installation of films and we had stronger tools, like a professional camera.
I have a personal affair with Portuguese language, majorly from Brazilian music, and I had the dark universe of David Lynch in mind. That also directed the way we chose costumes, locations and other elements. We had to work much more in terms of finding a concept and preplanning to make site-specific footage. Because we had shows there, we filmed a lot in Portugal.
We were organized to work for a period of four years in this creation and I wanted to keep our company on the web, keep our company on the stage, keep using music, and keep using technology; this time going deeper in the interactive possibilities.

1.4.1 The web side of the project

The web is like a key to the project, where we can see things in a different way. The work appears in isolated parts (which were many times shown in festivals, as 2-5 mins pieces), that can be seen separately, but that can be re-linked in the net, where you can build a narrative structure, of your own.
The most distinctive opportunity in the web is the possible change of POV; this cinematic and choice experience brought a different gaze that informed the choreography on the stage work.
At this time our website was already a known platform of exchange and sharing; we were more aware that we could share the work and reach a wider audience. I see the Internet as an open window, a free open window, and for *Invisible* there was the possibility of immediate sharing, for our web-audience.
Since the outcome of *Invisible* was often seen as fragments (by the short films presenting on festivals), the web provided a vertebral column to the project, linking between separate things, and this was fundamental in writing and composing the movement. When I made a movie for the net, this would tell me a story; and then I would make a module (interactive) and that would help me organizing the whole work and would tell me something more about a wider narrative.
Technically things had already improved a lot but it was still difficult to have a good web-broadcast signal, so again we had to consider that problem and make things that could work with those rules, otherwise they really could not be seen in the website, they would not run properly for the audience.

1.4.2 Interactivity - what justifies using it; effects in the work

The web is what inspires us to use interactivity in our work; we can give our spectator a unique POV. We have humans in front of us, which look at us, and we are presenting ourselves with human bodies. Interactivity in live works has to be there to serve a clear purpose, but if not, I don't use it, live. We explore more interactivity on the web. When working to put something online I was aware that at any time of the year, of the day from anywhere, people could see me. They could see my body, my dance, at their own time. And they would see it on their own way. This was a bit like giving my self cost-free, having people more like voyeurs.
Each time someone clicks we are representing for that person; this was an incredible feeling and possibility, and that changes totally the construction of the work in the way a live artist is used to do. Here the performance happens because people as audiences click on it. I knew I was going to perform for people that I was not going to see, I was not going to be close to.
The interactive possibilities are limited and were defined; the choices given to the person are interfering in the sound, text and what image or film is played. The discovery of the work comes out of the interactive navigation, which is personal and different each time. There was a lot of material that could be combined and I used the shape of a circle for the menu to encourage different associations and starting points. After exploring with the web we made this kind of navigation possible in the work presented as a DVD ROM (a materialization of the project), but the construction of that started in the web.
As software we added to the previous tools Multimedia Builder, that enables setting the responsive links and interactive structure.

1.4.3 Composition process – performers and choreographic phases

The experience of the web-artist (VS stage-artist) is different, I had to consider again: how am I going to show myself, how is the dance going to be?
Basically, following a text I had in mind, we would have a space available, improvise on the space, had cameras and costumes, and we experimented a lot of different things. We knew after capturing we could do a film and put it in the net. That was a purpose in site specific capturing phase.
For the performer, we had much more attention to the idea of character, rather than a more neutral dancing body, because we wanted to exposing the personal, the intimate, which would broadcast to whole world. The camera was seen as an observer and we used different perspectives and lighting variations.
Then the web was the converging space, and helped me a lot to make choices on the artistic content, because I had a lot of things captured. It was an assemblage process, ultimately completed by the spectator putting things together in his/hers own way.
With the circle menu and the interactive possibilities, we had the idea of connecting the elements and how looking the work changes from one space to the other, like the different sites where we filmed.

1.5 Project Discussion - 96 détails (2006-2009)

In this piece we followed a similar process as with Mini@tures (focusing on the poetic and ludic) and Invisible (exploring the shadowy and intimate), but we had already the knowledge from those experiences, where many ideas appeared, throughout the tours, that informed this new project.
There was the new ADSL connection and a lot of the technological limitations in the early phases were overcome. For this project freedom was very important, achieved with the capacity of machines and speed of the information flux.
We departed from the idea of the cube as a formal reference, to make something that could happen specifically on the web, and there was the starting point again, not on the stage, but also not in the isolated films. In terms of interactive features I wanted to increase the options for the audience to be able to manipulate this material, and make something really unique of them.

1.5.1 Choreographic process

I wanted to go back to the abstraction, to a choreography that was almost like calligraphy; therefore we worked about lines: lines of the body, the light, the space. We devised choreographic phrases so that they could be seen from the top, and we made discoveries in terms of vocabulary, because there were some movements that did not work and in others cases, only some kind of movements would work, depending on the planes used.

We worked on a square, in the floor, but also defined this space three dimensionally, as a cube, setting like this the limits for the performer. We went back to a fixed space, and used a fixed camera in three different positions, reproducing in 2D the motion capture set of cameras (that catch different angles at the same time) but with video. And we made individual clips.
With capturing I realized that the idea of pattern could happen, and so I worked again the choreography in relation to that possibility. There was a continuous exchange between studio, body, and machine, to find what the computer could give me and find the image I wanted. Again we had to experiment a lot.

1.5.2 Technologies

We could have used a bigger tool, much more heavy in terms of hardware and software, and that would help arriving faster to our aims, but I did not want that. I wanted to research with accessible tools, because all that time has a strong effect later in the stage work. It was interesting for example to consider the two plans: on screen the floor goes up, on stage, the square falls down. We made a complex data-base of sound, image and texts to study the possibilities of combination in the cube shape.
We kept using digital video camera and standard video editing, music composition and interactive design software.

1.5.3 Themes

This work has no history, no narrative. It has to do with what do you leave as a trace of presence, of what is being human. And so we focused on details: the ones of memories, of bodies, insignificant things, that may be extremely important.
We found two things that are very strong in this project: the body becomes abstract, becomes pattern, and that is possible because of multiplication; the reproduction of the body is there, but there is a second layer when you see the mix; the body is transformed, but only as an illusion, it looks like an insect but it is a real human body.

1.5.4 Audience feedback

In this work the role of the audience is very strong, determinant, it's a major characteristic. I think the work is there and the audience makes it happen, as a *Tableau Vivant*.
The people of fine-arts find it interesting because the image can represent movement, without being cinema. For them it is also interesting to be able to make things with the body. For us we can represent the dance on a new way that is closer to the visual arts kind of display.
Having these modules in the Internet we can find new connections between our art and other fields, and connect to people that are not at all familiar with the body as an agent and the body as an art, and they also discover thing, like playing with the body.
When we are touring we give workshops and there we can have direct feedback about how people feel by working in this kind of composition. We also have feedback from spectators that come and talk to us during this time we are in the theatres. Or some times they write us back, through the website. One person told me she spent one hour playing with 96 Détails, and gradually that became extremely poetic: to move the body like that.

1.6 Concept discussion – The web as opportunity or as menace, construction and property.

(you see the web as a construction space and not as a space that might steal your work. Do you have property issues?)

We are not very concerned with property issues because we know, from the beginning, that we are going to give, that this is going to happen in that site, with those conditions. I know I have been copied but it does not matter. Mini@tures is always original and unique.
We are in an economic society where all is sold and has economic value; but for us the notion of value and investment return is not only measured in terms of money. Things come back in different way, people's comments, press coverage, people buying our pieces on stage that is also important.
I know we are very generous. There are many artists that think differently, more in the commercial side., using the Net is to sell a project; in some cases they charge money to access the interface and the work.

The net does not bring money, and that is why choreographers don't do that so much. To arrive to a result that is a work of art that is free is not very interesting for most people. I understand that, because sometimes people don't value free performances.
On the other hand, the choreographers, most of them, don't know how to work with the tools. In our team we have a good balance of multitasking experts with different skills and that is very important for the work we do. We can pursue the artistic goal when all the process is contained within our small team and does not depend much on external input, particularly because we do so much research.
In the stage we are a company with everything in place, in terms of economy; our shows are sold and we are a professional company as such, from very early, in the 1980s. But with the Internet it is different; I like to have it as a free thing. In the web our art is free for everybody. This also gave me a different space to create, I could be much more free of all the value that was put in the art as a commodity. I could create an alternative to that economic logic.
The problems are that net art is much less funded, if it is funded at all. We only had once a specific funding for this from the Cinemateque de la Danse; normally the company uses the money from stage work to finance the research on the web.
Also there is the credit for our work. In several aspects the value of screen projects in dance is much less than that of stage productions. In the institutions they were often suspicious about our position: were we multimedia artists? Cinema people? Can we continue to be considered choreographers? The whole system is suspicious about dance artists that move to another medium like the net. In the beginning they were really not sure about this move, these territories, but in the present that is more accepted and is better seen. A lot of choreographers have websites, but very few have artworks made for the web.

1.7 Concept discussion – belonging to the performing arts

I think our work is evidently performing arts because the people, as performers, have not disappeared. But we are working for a *Cyberplateaux.* For us, from the beginning, internet is the smallest but also biggest theatre room of the world (something mentioned by the journalists). I give the same importance to web projects, or the web part of my projects that I give to the stage parts. We can now make things with dance that we could not do before, on stage, and that is becoming more and more easy to do, technically speaking. To put your work on-line is to make yourself visible in that world. But it gives as well a new look at the live work we do.
If we talk about dance, there are some works appearing on the web, but they are mostly films: video dance works that can be seen online as well as in the cinema or TV. To see something interactive is much more difficult and rare. I don't know really of other projects (I think this is symbolic that they do not exist a lot), the press gave us a lot of credits of pioneering work, it was not us, and we had a lot of return after Mini@tures, touring in 40 countries in 10 years, as performance artists.
My concern now is to continue without doing the same; finding a different path and working with new constraints. In our next piece we want to develop much more the choreographic side, with a lot of freedom in that sense, and all is written, no improvisation.

2 Section 2 - information displayed on the company's website

This section regards a short compilation of information provided by the company in their website www.mulleras.com .

2.1 The company

In http://www.mulleras.com/e_bio.html [accessed 10 June 2014]

Magali Viguier-Mulleras (choreographer) and Didier Mulleras (choreographer, musician) both French, based their dance company in Béziers (South France) in 1986. They actually work in their own studios, the CED center, where they create and teach.
Their dance Company has already presented and toured 20 creations for the stage, and more recently mini@tures and INVISIBLE. They work closely, since 1992, with Nicolas Grimal (stage & film director, multimedia artist).
In 1997, they both build and launch the web site www.mulleras.com, and initiate a long term approach of links between new technologies and dance. They create short films and interactive animation on their website, in free access for all audiences. Web works have been discovered on-line by more than 120.000 virtual spectators, coming from 75 countries.
The company toured, on stages and screens, in 25 countries at this day, some tours helped by AFAA Paris, including, USA, Mexico, Brazil, Monaco, Portugal, UK, Thaïland, Malaysia, Germany, Belgium, India, Ukrain, Viet Nam, Spain, Italy, Latvia, Netherlands, Indonesia,... with a rich international media and press coverage.
From 2002 to 2005, they create their current long term project, "INVISIBLE", coproduced by Le Cargo-Grenoble and CNC (French Cinematographic Center in Paris).
From 2006 to 2009, they launch the "96 DETAILS" project, designed for stages and screens.
Magali and Didier Mulleras are part of the new generation of artists who do not wish to remain subjugated to established styles, as much in the writing of movement as in the places of presentation. Their creative process using multimedia, notably internet, is today appreciated as a new path to be taken. Their close look at the world allows them to confront their dance to the technical improvement of this millenium, showing a new dance in ever-changing settings...

Magali & Didier Mulleras Dance Company
Choreographers: Magali et Didier Mulleras
Dancers: Severine Prunera, Elisabeth Nicol Magali Viguier-Mulleras, Didier Mulleras
Scenography, technical direction, multimedia & video, webmaster: Nicolas Grimal
Music: Didier Mulleras
Press & PR: Vanessa Mestre

2.2 96 details - web & stage works, dance - images - multimedia (2006-2009)

in http://www.mulleras.com/96d/e_accueil96d.html [accessed 10 June 2014]

2.2.1 introduction about the work

"96 DETAILS" is a creative trip designed from 2006 to 2009 by Compagnie MULLERAS, one of the first artists which enabled the setting in visibility of Dance on the Internet network, directed by Magali Viguier-Mulleras (choreographer), Didier Mulleras (choreographer, musician), and Nicolas Grimal (film & multimedia), the artistic team which have already created past projects "mini@tures" and "INVISIBLE".
From web creations, launched on www.mulleras.com, to stage and screens works, Compagnie Mulleras keeps on experimenting new paths and links between Dance, Film and Multimedia, thus continuing to invest the new artistic workspaces offered by new technologies.
The long-term project "96 details" proposes a fusion and interaction of distinct universes (dance, music, video, interactive and multimedia works). Various achievements will be presented to the audience on different supports (screen, web, cdrom, stage) according to specific works:

- **short films** for the website www.mulleras.com
- **interactive animations** for the website

- **stage performance** using digital tools
- **live multimedia** works
- **video installation - multimedia exhibition**
- **performance** inside the exhibition

The result of this long-term project is wished like a global, nomadic and hybrid artwork, where body and dance are hustled by a fragmentation made possible by new Medias.
"96 details" is a suite of artistic modules, able to function close or far from each one. A polymorphic work, which declines its units almost infinitely; a puzzle to be discovered by a fragment or by fusion of each element.
As part of the global artistic project "96 details", the stage performance "TRACES" proposes a fusion and interaction of distinct universes (dance, music, video, interactive and multimedia works).
From web creations, launched on www.mulleras.com, to stage and screens works, Compagnie Mulleras keeps on experimenting here new paths and links between Dance, Film and Multimedia, thus continuing to invest the new artistic workspaces offered by new technologies, in various achievements to be presented on several supports (screen, web, cdrom, stage).

2.2.2 Stage work – *Traces*

"TRACES" is a nomadic and hybrid live artwork, where body and dance are hustled by a fragmentation made possible by new Medias, as a suite of artistic modules, part of a polymorphic global work which declines its units almost infinitely.
Like the interactive cube shown on the web site of the global project, the stage setting is built around a center square (5 meters x 5 meters) on the floor, which will receive a vertical video projection, as well as light design and choreography. The immediate periphery of the square will also be used by dancers.

2.2.3 press extracts – *96 details*

"Digital technology has infiltrated the world of dance. Over the past decade, Mulleras, the dance troupe created by Didier and Magali Mulleras, has been rolling "choreographic electrons" on the Internet (www.mulleras.com). Undeterred by technical problems inherent in computer-base media, these pioneers of digital dance, with the help of stage director and multimedia artist Nicolas Grimal, created *Mini@tures*, some hundred of choreographic playlets as funny and poetic as Méliès's Cakewalks, in which dancers accoutred with large shoes sketch pas de deux steps with gigantic fingers or alphabetic characters. These brilliant virtual shows, accompanied by performances in the real world have paved the way for other motion-based shows while putting the spotlight on their creators. Four years after producing this light-hearted and memorable oeuvre, the choreographers created Invisible, a strange and dark production narrated with the use of several media. "This piece explores another facet of our artistic personalities", said Didier Mulleras. "While *Mini@tures* spoke of the body's fragility in relation to image, *Invisible* put the emphasis on the notion of ubiquity and disappearance of visual perspective and identity." On stage the dance number is harsh and oppressive and is projected onto two huge screens. On the internet, the number is shown as a series of thirteen very short films, as enigmatic as a Lynch movie and as quiet as a Hopper painting. Filmed on location in nine different countries, these "micros" feature fragmented choreographies, which are sometimes recomposed during editing, and for the first time ever, they are interactive. Like a conductor, the viewer can slip in and out of illusionistic universe, start the dance number, accelerate or slow down its pace, or play it over and over at will. The new creation by Mulleras troupe - 96 details, which will be completed in 2009 – is the synthesis of the two previous productions. This time composed by ninety- six interactive stories and accompanied by other performances, the choreography is at once sober and light-hearted. Although the scenic and digital are produced simultaneously, the dancing bodies are first shown on the internet then presented in the real world (Traces). By going back and forth between the internet and the real stage, the choreographers learned to do away with some of the problems related to production. "We still have two years to go before completing *96 details*. We hope to able to retain our independence as authors until the very end and allow the viewers to freely appropriate our work." **INTRAMUROS** - may 2007

« La Compagnie Mulleras est l'une des plus vives et pertinentes sur le terrain de la création chorégraphique numérique actuelle. Après Mini@tures (1998-2001), vignettes de danse graphique visibles sur le Net, qui lui valurent une reconnaissance internationale, elle présente son nouveau chantier, "96 détails", petits films et animations interactives qui mettent la danse au bout de la souris. » **TELERAMA** / décembre 2006

« Depuis une dizaine d'années, la Compagnie Mulleras s'est fait une spécialité rare des rapports danse et nouvelles technologies. A l'instar de mini@tures et Invisible créés et diffusés sur Internet et sur Cdrom avant de passer à une version scénique, TRACES prend corps à partir du projet 96 DETAILS du site web de la Compagnie, poursuivant la démarche transversale entre art numérique et art vivant. Les danseurs se confrontent aux images filmées, offrant de multiples angles de vision d'un univers où traces intimes et d'autres, universelles, glanées à travers le monde, ouvrent sur un espace-temps artistique inédit. La nouvelle

danse de TRACES, affranchie des codes habituels, s'annonce comme une collection de moments et de situations où le spectateur s'amusera à sa propre lecture. » **DANSER** / décembre 2006

2.3 Previous projects: Mini@tures and Invisibles

2.3.1 Mini@tures – video dance for web and stage (1998-2001)

In http://www.mulleras.com/miniatures/e_accueilmin.html [accessed 10 June 2014]

A pluralistic choreographic concept... A round trip from the real to the virtual, from multimedia to the stage, where dance plays with new technologies. A fusion of new dance, electronic music, video-art, and web-design.
"mini@tures" is a choreographic concept designed in the form of very short films ... shorter than short, where movement opens itself to new paths (internet & multimedia) to return punctually onto the stage, nourished by these new offerings.
The project displays 3 phases:
- **Phase 1** real ... virtual: multimedia and web works
- **Phase 2** virtual ... real: stage performance
- **Phase 3** real ... virtual: multimedia and web works (suite et fin)

On the net, CD-ROM, video, or on stage, mini@tures is short. Always. Sometimes strange, sometimes funny, sometimes tender... A new dimension which plays with time/space.
A nomadic dance, in the conquest of new territories to be claimed. A free concept, for a free audience...

2.3.2 Mini@tures – press extracts

"... un nouvel art, autonome, qui agit avec un charme indicible, ni vraiment homme ni vraiment machine." **LES INROCKUPTIBLES**

"...Des petits moments de danse, mignons, ludiques, plein d'humour, de dérision. Le résultat est étonnant, à la fois insolite et très accessible. Un exercice exécuté avec avec une précision remarquable." **LIBERATION**

"Têtes chercheuses en matière de danse et de nouvelles technologies, les chorégraphes Magali et Didier Mulleras conçoivent des "mini@tures" pour internet, tout en créant parallèlement pour la boîte noire. De l'écran à la scène et inversement, ces allers-retours entre réel et virtuel nourrissent une réflexion artistique inventive et résolument tournée vers l'avenir." **LE MONDE**

" Entre la scène et le web, le mouvement est perpétuel ... Ces clips jonglent avec des personnages graphiques et ludiques ... Glissements et métamorphoses du geste, c'est dans cet aller-retour entre scène et écran que la compagnie Mulleras attaque l'an 2000." **TELERAMA**

"... Didier Mulleras tient à se démarquer de la cyber-culture. Pour lui, l'enjeu est chorégraphique. Il s'agit de défricher un nouvel espace de création. Ces clips video-danse, au "choré-graphisme" très abouti, témoignent d'une réelle identité artistique et d'une démarche de création qui ouvre la danse à des espaces inattendus. A voir absolument, pour se plonger dans un nouveau langage chorégraphique, à la rencontre de créateurs inclassables" **ARTE**

"pour leurs "mini@tures - phase 2", Magali et Didier Mulleras ont choisi de décliner le réel dans un cadre scénographique très strict... Leur technique et leur formidable précision sont au service d'une interaction avec l'image projetée conçue pour le Net." **DANSER**

"...Ces virgules pleines de dérision et de poésie, jouant sur le hors d'échelle et un non-sens réjouissant, ont trouvé un ton simple, rapide, lisible, parfaitement adapté à la lecture sur Internet"**LES SAISONS DE LA DANSE**

international press
" Mulleras revels in the exuberant possibilities of new technology... Inventive, joyful ...beauty, fluidity and wit of their results... There is a wonderful sense of play and possibility in their work" ***LOS ANGELES TIMES***
" Another slice of technology and dance-filled innovation from this exuberant company" ***THE TIMES Londres***
" a rare chance to see in London a ground-breaking piece of dance, which has taken the world by storm. " ***THE GUARDIAN Londres***
" Compagnie Mulleras are an innovative troupe and one of the few to use computer technologyin interesting ways" ***EVENING STANDARD Londres***
"...Mulleras are among the important explorers in the field of digital art." ***BALLET TANZ***

" Mulleras is one of the most outstanding dance companies in Europe. A rare chance to see ground-breaking dance/technology works" ***ICA Londres***
" The interaction between image and dancer is amazingly precise. Computer-manipulated images of the dancers are very clever " ***KULTURE FLASH Londres***

2.3.3 Invisible - web & stage works, dance - images - multimedia (2002 - 2005)

In http://www.mulleras.com/invisible/e_accueilinv.html [accessed 10 June 2014]

On stage, as well as on the Internet, **INVISIBLE** offers a dark, **enigmatic** and strange universe...
This new creative trip of the Compagnie MULLERAS is designed as a three-year process from 2002 to 2005. In successive phases, this project proposes a fusion and interaction of distinct universes (contemporary dance, music, image, new technologies) in accomplishments presented to the public in various forms (multimedia, film, web, CD-Rom, stage). The creative process is realised in two time levels – virtual (films and interactive modules) and real (stage performance, happenings, installations). The audience will be able to see the results in two modes – live parts on stage and in real spaces and multimedia parts on computers, video screens etc.
INVISIBLE is a voluntary departure in style and aesthetics from the graphic and lively universe initiated by the Mulleras Company with their past project "mini@tures", thus continuing to investigate the new artistic workspaces offered by new technologies.
The aim of this new three-year project is to represent as it were a global work of art, containing artistic modules able to function close to – or far from each other. – Like a polymorphic work which declines its units almost ad infinitum to be discovered by fragmentation or fusion of the individual components.

3 Section 3 – collection of press articles Cie. Mulleras

FRANCE

Télérama

Danse

Chorégraphies sur le Net

Nouveau Evoluer avec une image ou au rythme d'un lointain partenaire, c'est possible. Quand les chorégraphes font rimer virtuel avec sensuel.

Danseurs et Toile

Magali et Didier Mulleras. Entre la scène et le web, le mouvement est perpétuel.

Télérama N° 2605 - 15 décembre 1999

Installés à Béziers depuis 1988, Magali et Didier Mulleras ont ainsi fait connaître leur compagnie de danse grâce au web. Ils ont même récemment conçu une danse visible uniquement sur Internet intitulée *Miniatures*. « *J'ai toujours baigné dans l'informatique grâce à la musique*, raconte Didier Mulleras, professionnel du clavier dès l'âge de 12 ans. *En surfant sur le web, j'ai constaté que le mouvement y est rare et généralement de médiocre qualité. J'ai eu envie de créer des petites danses, pour ce cadre-là, que j'ai baptisées micrométrages.* » D'une durée fluctuant entre dix secondes et une minute vingt, ces clips jonglent avec des personnages graphiques et ludiques. Et, après ces *Miniatures* web, la seconde partie de la recherche se met en branle : recycler pour la scène les numéros de danse du Net, qui seront eux-mêmes... reformulés ensuite sur le web ! Glissements et métamorphoses du geste, c'est dans cet aller-retour entre théâtre et écran que la compagnie Mulleras attaque l'an 2000. « *Nous ne sommes pas inféodés aux nouvelles technologies. Elles sont un moyen d'évoluer, de donner un autre sens à notre danse. L'enjeu est chorégraphique et non technique.* »

Le corps reste évidemment au cœur du débat. Comment préserver cet outil de chair et de sang dans le tourbillon des effets spéciaux ? Jusqu'où repousser ses limites sans devenir mutant ? Comment garder son intégrité quand son image est démultipliée ici et là au même moment ? Le corps est-il dépassé dans le cyberespace ?

En déplaçant les frontières de l'art chorégraphique, les technologies nous projettent dans un monde inconnu. Mais irrésistible ●

Rosita Boisseau

Vendredi 17 Mai 2002 n° 6533

Libération

Danse

Zestes de gestes

www.mulleras.com

Ils se battent contre des lignes, ploient sous des mains géantes, s'agrippent à des pouces, se font asperger par des pulvérisateurs comme de misérables insectes, au rythme de grosses basses techno. Invitée au 5e festival Art et Technologie de Compiègne (1), la compagnie biterroise Mulleras interprétait *Mini@tures* sur la scène de l'Espace Legendre, une extension *live* de son projet au long cours débuté sur le Net en 1998.

Dérision. A l'origine, *Mini@tures* est une aventure chorégraphique conçue uniquement pour le Web, «*la plus petite scène du monde, mais aussi la plus grande*», sourit Didier Mulleras, fondateur de la compagnie avec sa femme Magali. Le site propose des petits moments de danse, mignons, ludiques, plein d'humour, de poésie, de dérision.

Au total, 100 micrométrages, clips vidéo minuscules et ultra-courts (de dix secondes à une minute vingt), pour faciliter la diffusion en ligne. Des contraintes techniques dont se joue le chorégraphe au crâne rasé et aux *platform shoes*. «*Ça nous a permis de travailler l'épure, d'aller à l'essentiel. Il fallait faire court et léger, peu de temps, peu d'espace, peu de gestes.*»

Le résultat est étonnant, à la fois insolite et très accessible, parfaitement adapté au Web. Jeu de cadres, d'échelles, effets spéciaux, incorporation de corps étrangers (des éléments graphiques, des segments de corps démesurés…), tour à tour moteurs ou obstacles au mouvement des danseurs, l'univers des *Mini@tures* prend progressivement forme et l'envie de faire prendre l'air à ces petits modules est de plus en plus forte. Quittant «*une boîte (l'ordinateur) pour une autre (la scène)*», les *Mini@tures* entrent dans la phase 2. «*Nous voulions prolonger et rendre réelles certaines idées, donner un nouveau cadre de lecture à nos clips*», explique Didier Mulleras.

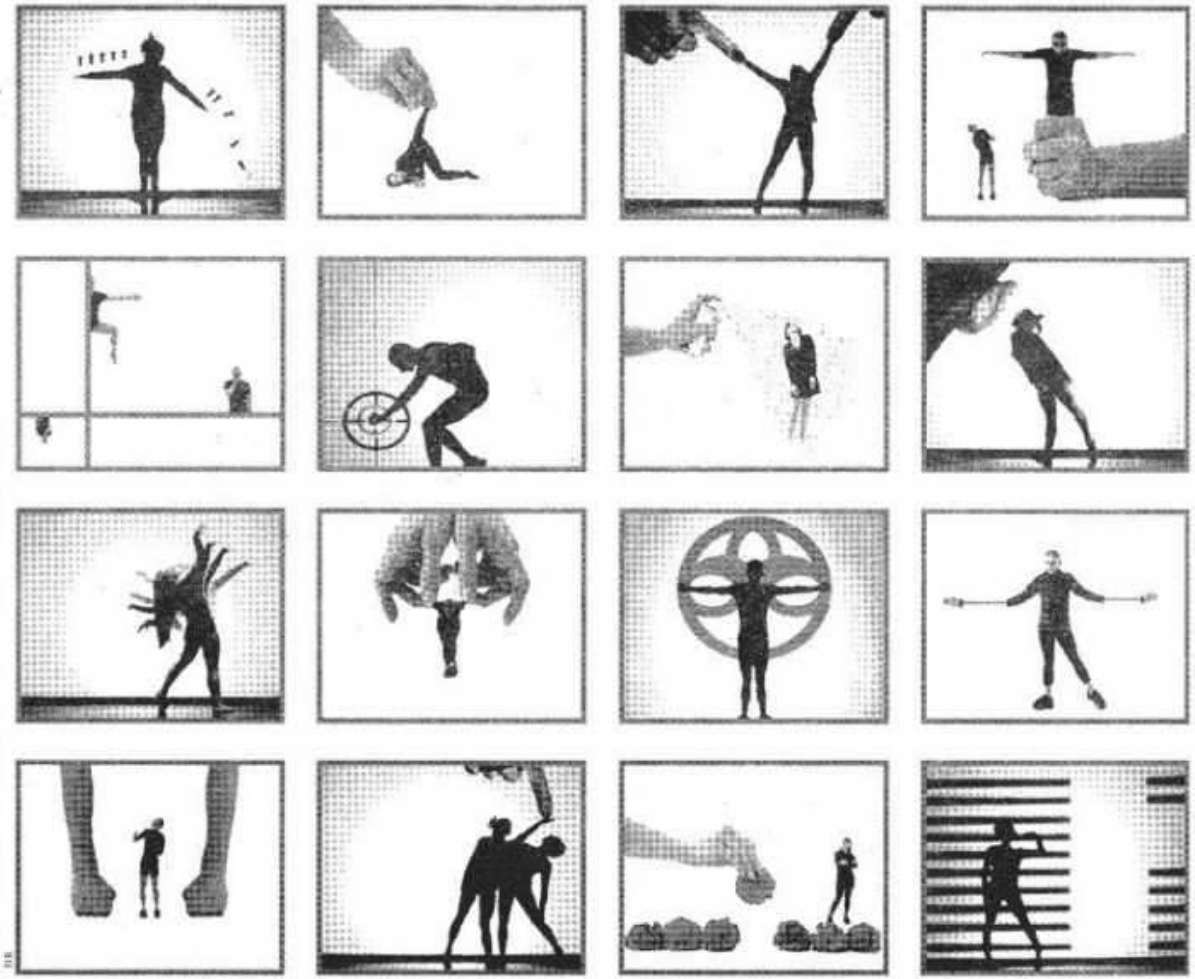
> **«Il fallait faire court et léger, peu de temps, peu d'espace, peu de gestes.»** *Didier Mulleras, chorégraphe*

Sur scène, quatre danseurs interagissent avec une image géante projetée inspirée de l'univers graphique du site. Ils échappent aux contraintes du réseau, pour mieux se plier à celles de l'image avec laquelle il leur faut composer. Un exercice exécuté avec une précision remarquable mais frustrant pour le spectateur-internaute. Car si, sur le Net, l'imagination n'a pas de limite, certaines choses sont humainement impossibles à réaliser. Du virtuel au réel, du réel au virtuel, les allers et venues de l'écran à la scène sont incessants, l'un se nourrissant de l'autre.

Nouveau projet. La dernière série des *Mini@tures* (phase 3) a pour cadre les décors naturels de l'île de la Réunion ou encore les délires architecturaux de Barcelone. Malgré le grossissement des tuyaux, Didier Mulleras a voulu que ces *Mini@tures* restent quelque chose de petit, de modeste, de précieux, qui tient dans une paume de main et oblige le spectateur à se pencher plus près pour voir. Achevé sur le Web, le spectacle est en tournée jusqu'en 2004. Mais la compagnie travaille déjà sur un nouveau projet, *Invisible*: toujours de la danse et des nouvelles technos mais une ambiance radicalement différente, promet le chorégraphe. «Mini@tures, *c'était Walt Disney*; Invisible, *ce sera plutôt Lynch.*» ●

MARIE LECHNER

(1) 5e festival Art et Technologie jusqu'au 25 mai, Espace Jean-Legendre, place Briet, Daubigny, 60200 Compiègne. Mercredi 22 mai 20h, *Numéric Circus*, spectacle de marionnettes de la Cie Animaçao.



«Mini@tures», c'est 100 micrométrages, clips ultracourts (de dix secondes à une minute vingt), pour faciliter la diffusion en ligne.

Memento

nov.2006

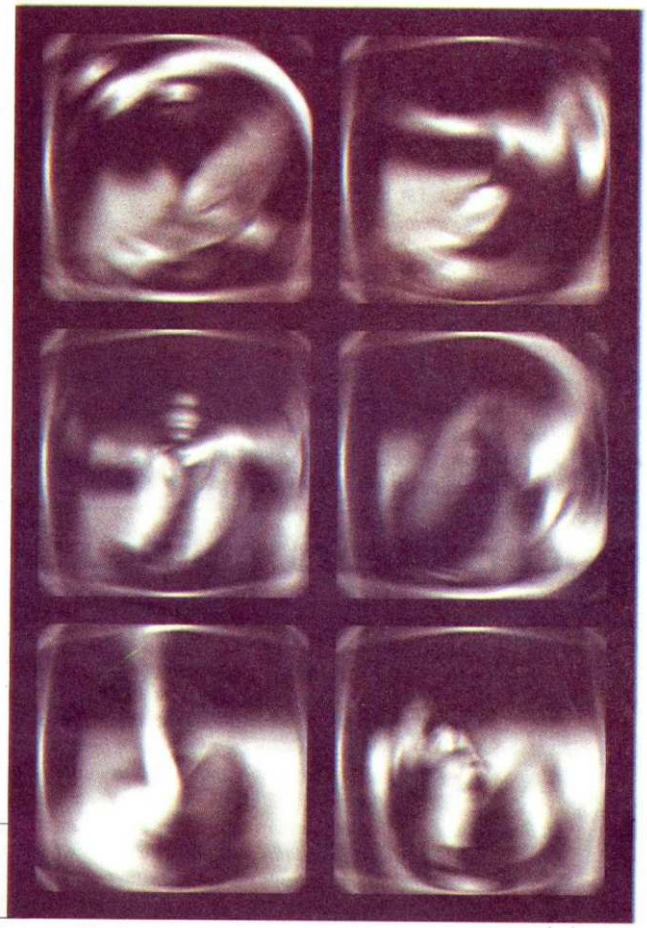
Théâtre de Béziers
Béziers

Une arithmétique chorégraphiée

Inséparables à la vie comme sur scène, Magalie et Didier Mulleras explorent ensemble la création liée aux rapports entre le corps et l'image.

96. C'est la somme des carrés obtenus par subdivision de chaque face d'un cube en seize carrés égaux (4x4x6). Cette interface cubique, mise en place également sur le site Internet de la compagnie www.mulleras.com qui regroupe au fil du temps tous les travaux réalisés, rythme le jeu et la création scénique et numérique du dernier spectacle de Magali et Didier Mulleras. L'architecture du projet, conditionnée tel un « kit » modulable à assembler, s'adapte ainsi de manière plus ou moins atypique aux dimensions et caractéristiques du lieu de représentation. Après « Invisible » (2002-2005) et « Mini@tures » (1998-2001), la nouvelle combinaison interactive « Traces (96 détails) » s'inscrit également dans une initiative de mise en oeuvre à long terme.

Créée à Béziers en 1986, la compagnie Magali et Didier Mulleras travaille parallèlement sur la danse et les nouvelles technologies. Jusqu'à ce jour, 25 pièces ont été crées pour la scène, mêlant théâtre, musique, vidéo et danse. Depuis 1992, le scénographe et réalisateur multimédia Nicolas Grimal ainsi que les danseuses Sèverine Prunera et Elisabeth Nicol collaborent avec le couple Mulleras. Au cours de ces dernières années, les œuvres de la compagnie ont largement été diffusées en France et à l'étranger. Le théâtre de Béziers, Montpellier Danse, la Scène Nationale de Sète, le Cargo à Grenoble mais aussi le Monaco Dance Forum, Festival Fabbrica Europa de Florence, Skirball Cultural Center à Los Angeles (le temple de la danse moderne !), ICA Institute of Contemporary Art à Londres, les structures de diffusion et de copoduction des œuvres de la compagnie sont nombreuses et cosmopolites.



6 détails issus de Traces, spectacle qui après Béziers, lieu de création, part sur les routes du monde entier... © Cie Mulleras

Entamé dès 1997, le parcours lié à l'image et aux nouvelles technologies se poursuit avec le dernier spectacle des chorégraphes. Ainsi, durant 3 ans, ce projet, basé sur une expérimentation multimédia entre l'art numérique et l'art vivant s'emparera tant de la scène que de l'écran. Coproduite par le théâtre de Béziers et la Région Languedoc-Roussillon, la première phase de « 96 détails » s'inscrit dans un projet global. Tel un puzzle composite, il propose une approche nuancée de l'œuvre. Sur le net, les visiteurs accèdent à différents modules de l'œuvre à travers un cube interactif proposant un total de 96 fragments. Ce contenu artistique, mis en réseau sur la toile, se décline sur différents supports. Sur les planches, la scénographie, oscillant aux frontières entre l'abstrait et le réel, propose une multitude de déclinaisons chorégraphiques et numériques. Les binômes émotionnels abordés sont tantôt complémentaires (mémoire et conséquence, fond et forme), tantôt antagonistes (ici et ailleurs, concret et chimérique). Ce dialogue corps-image dessine un espace d'échange entre la danse et l'image, entre la mouvance et la stabilité.

Anne Guizzo

Traces (96 détails), Compagnie Mulleras
du 30 novembre au 2 décembre
Théâtre de Béziers.

Midi Libre

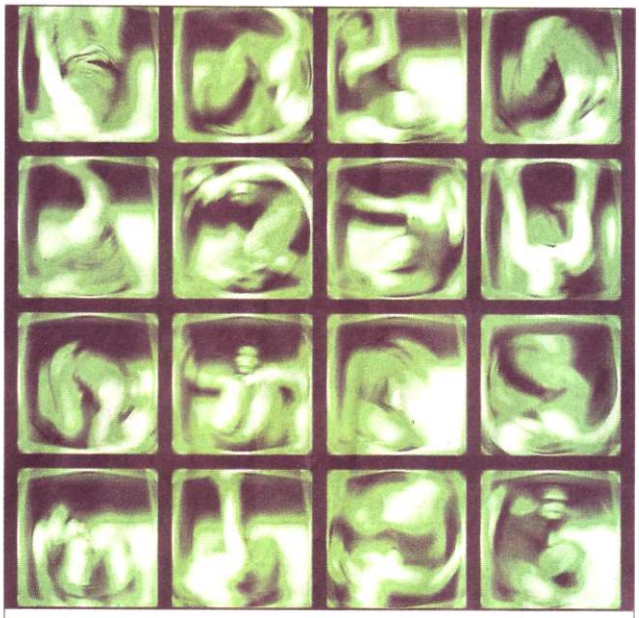
Lundi 27 Novembre 2006

Danse Cie Mulleras : Traces, premières visions au théâtre

On pourrait les croire enfermés dans leur passion de la danse. Ou derrière leurs ordinateurs qu'ils maîtrisent autant que les pas élégants et fluides qu'ils déversent sur scène. Cloîtrés dans leur art, inaccessibles entre deux avions qui les mènent danser sur les cinq continents. Lointains.

Il n'en est rien. Magali et Didier Mulleras sont ouverts sur le monde Sur leurs contemporains. Le succès et la reconnaissance de leurs pairs et du public n'a pas projeté le couple et leur compagnie dans une tour d'ivoire. On leur a fait les yeux doux, proposé résidences et migration hors Biterre. Ils restent fidèles. A leurs racines. Béziers qui les a vus naître, évoluer. Les a portés : « *La ville a toujours cru en nous. Et maintenant, il y a Bruno Deschamps, à la direction des théâtres. Il nous a laissé carte blanche* ».

Totale liberté donc pour construire, dans un univers scénique et numérique qui leur est propre, leur nouvelle création. "Traces", premier jet d'un projet annoncé sur 3 ans : "96 Détails". Un spectacle proposé à partir du 30 novembre au théâtre municipal auquel s'associe également la Région. « *La confiance a été telle qu'on a pu bénéficier du théâtre durant 15 jours.* » Idéal pour fignoler, mettre en mouvement leur écriture scénique, l'approprier aux lieux.



16 espaces de découverte pour un total de 96 lieux d'expérimentation.

L'outil de travail est le même que pour "Mini@tures" et "Invisible", leurs précédentes créations. Un savant mélange d'art numérique et d'art vivant. Les nouvelles technologies au service du corps dansé. Les travaux sont largement diffusés, en accès libre, sur le très intéressant site internet de la compagnie. « *Qui est avant tout une expérimentation, un moyen d'expression, avant d'être un outil promotionnel* », précise Didier.

Continuité donc des procédés employés, mais Traces est unique. Tranche avec "Invisible", plus sombre. « *C'est une réflexion sur le thème d'ici et d'ailleurs. Sur des traces de vies. Nos vies. Avec des évocations sur les pays, les gens qui nous ont accueillis au fil des tournées.* » Avec la particularité de s'articuler autour d'un cube interactif. Visible sur internet et qui sera reproduit sur scène. Soit 16 espaces de découverte pour un total de 96 lieux d'expérimentation.

La scène du théâtre sera modifiée. Intime. Les spectateurs, au nombre de 96 par soir. Le spectacle promet autant de subtilités attisant la curiosité. « *On a eu beaucoup de retours sur les précédents projets. En coulisses, dans notre centre, par mails. Des appréciations, parfois des réappropriations. Certains nous ont écrit des scénarii avec ce qu'ils avaient vu. C'est interactif, enrichissant.* »

D'aucuns ne doutent que, cette fois encore, il restera des traces.●

Patricia GUIPPONI

Traces (96 Détails), jeudi 30 novembre et vendredi 1er décembre à 20 h. Samedi 2, à 19 h 30 et à 21 h. Théâtre de Béziers : 04 67 36 82 80. www.mulleras.com

l'Art...vues
Le magazine culturel de votre région
Dec .2006 / Janv. 2007

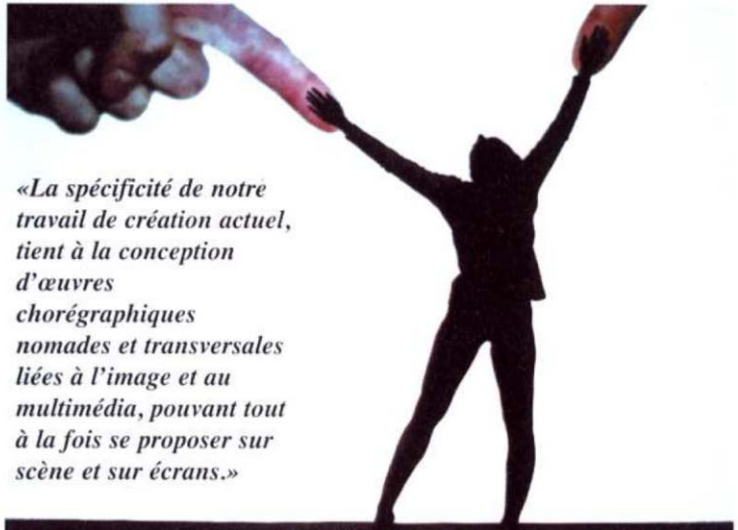
Danse : la Compagnie Mulleras au cœur de la création, l'enseignement et la diffusion

La compagnie Mulleras est une compagnie de danse qui a délibérément choisi de s'installer à Béziers. Elle est codirigée par Didier Mulleras et sa femme Magali Viguier. Ces deux chorégraphes français, l'ont créée en 1986 à Béziers, au sein du Centre C.E.D, qui abrite depuis leurs activités et projets (création, enseignement, diffusion). Depuis, ils ont créé 26 pièces chorégraphiques. Leurs récents spectacles sont régulièrement diffusées en France et à l'étranger. En 2007, la création « Traces – 96 détails » présentée en première au théâtre de Béziers les 1er et 2 décembre, bénéficiera d'une riche diffusion en Languedoc-Roussillon, notamment à Montpellier Danse, au Périscope de Nîmes et au Médiator de Perpignan. Rencontre avec Didier Mulleras, un des artistes importants de la ville.

Pouvez-vous nous parler de ses origines et du projet de départ ?
Après notre formation, Magali et moi avons été interprètes et assistants dans plusieurs compagnies. Nous avons eu très tôt le désir de créer notre propre aventure de compagnie.
Nous souhaitions dès le départ développer un projet artistique complet, avec une équipe de danseurs et de chorégraphes professionnels, sur trois axes : création, formation, diffusion. Nous avons trouvé un lieu, proche du Canal du Midi, vaste entrepôt que nous avons nous-mêmes aménagé, sans aides officielles, afin de recevoir l'ensemble de nos activités (création de spectacles avec notre équipe, enseignement chorégraphique pour tous les publics, sensibilisation et diffusion chorégraphique).

Comment a-t-il évolué depuis ?
Les studios du Centre CED fonctionnent depuis vingt ans, et toujours dans l'esprit que nous souhaitions : pas simplement une école de danse, mais un lieu de création, un atelier d'artistes, ouvert, réceptif à la danse d'aujourd'hui, afin de mieux la partager avec le public. Depuis, le public pratiquant la danse au Centre CED est là chaque année, fidèle, et répond favorablement à nos propositions.

Pouvez-vous décrire votre travail actuel de création ?
Nous travaillons depuis début 2006 sur le projet « 96 Détails », un chantier de créations numériques et scéniques prévu sur trois ans jusqu'en 2008. Cette œuvre fait suite à nos deux précédents projets à long terme, « Mini@tures » et « Invisible », également liés à l'image et au multimédia. Depuis 1997, notre équipe a souhaité dédier son parcours de création chorégraphique à une expérimentation transversale, liée à l'image et aux nouveaux médias. Nous avons conçu, avec notre ami et fidèle collaborateur Nicolas Grimal, notre site internet en 1998, comme un « laboratoire » de créations numériques. Le site web sert de base artistique à nos projets actuels et permet également de les diffuser auprès du public français et international.



Le projet «Mini@tures» a marqué un nouveau virage pour la compagnie

Comment définiriez-vous votre « style », votre spécificité, votre identité ?
L'identité de la compagnie et la visibilité de son travail ont été affirmées autour de 1999, avec le projet « mini@tures », qui présente à la fois un spectacle vidéo-danse et un ensemble de 100 micro-métrages dansés sur le web. Le public connecté s'est chaleureusement emparé de cette œuvre, ainsi que les médias, et nous sommes reconnus depuis cette époque comme étant parmi les premiers à avoir rendu la danse visible et lisible sur le réseau internet. C'est majoritairement l'image que le public a de nous. La spécificité de notre travail de création actuel, tient à la conception d'œuvres chorégraphiques nomades et transversales liées à l'image et au multimédia pouvant, tout à la fois, se proposer sur scène et sur écrans.
En ce sens, nous concevons des projets numériques et scéniques, des œuvres polymorphes et modulables, qui sont volontairement fragmentés et se présentent dans divers cadres de lecture, participant toujours d'un aller-retour incessant entre la « boîte noire » des scènes de théâtres, et les écrans vidéo ou informatiques. Notre style chorégraphique et même notre style artistique, sont parfois indéfinissables, car ils se jouent volontairement des cadres de lectures strictement réservés à ce que nous mixons et mettons en œuvre.
En effet, nous travaillons la danse au-delà des scènes qui lui sont traditionnellement réservées. De même, nous proposons le multimédia en l'éloignant souvent de son utilisation principale qui reste avant tout bureautique ou informative. Enfin, nous présentons l'image et le film sur des supports et dans des cadres qui ne sont pas ceux d'une salle de cinéma ou d'un poste de télévision.
Donc, hormis la continuité dans le processus d'élaboration web – scène, nous allons dans des directions très diverses, avec des projets aux tons parfois très opposés (graphisme, humour et poésie pour « mini@tures », univers énigmatique et parfois sombre pour « Invisible »).

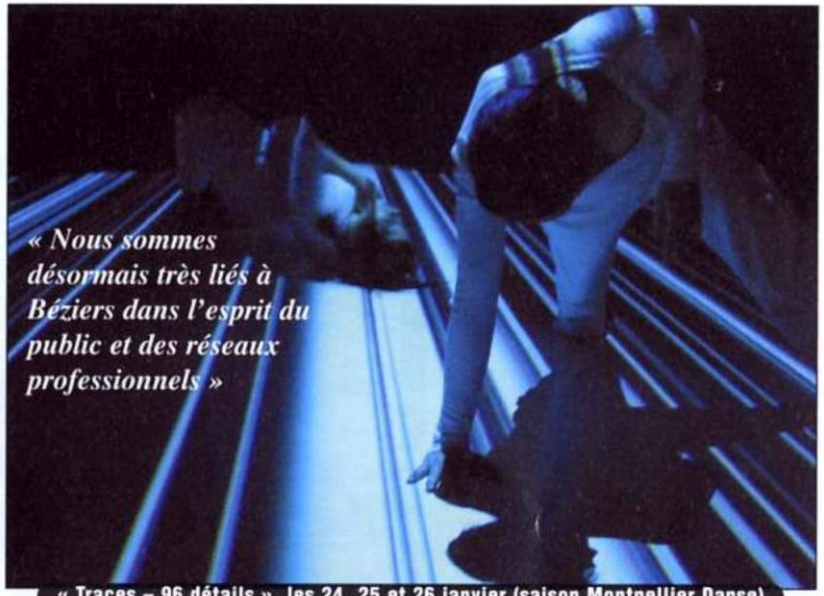
Comment travaillez-vous avec les danseurs ?
Nous demandons aux danseurs de notre équipe,

notamment à Elisabeth Nicol et Sèverine Prunera qui interprètent nos œuvres fidèlement depuis plus de dix ans, un double travail : danser pour un public présent au sein d'un spectacle vivant, danser pour l'objectif d'une caméra afin d'élaborer nos courts-métrages et nos modules interactifs. Notre équipe actuelle est réduite, nous pouvons ainsi tous travailler dans une pleine connaissance partagée des impératifs et des directions à suivre afin de concevoir nos œuvres.

Que signifie pour vous être chorégraphe aujourd'hui ?
Rester ouvert au monde, à ses avancées et à ses dysfonctionnements. Rester libre d'en parler ou pas au sein de nos œuvres. Rester libre. Ouvrir la danse à de nouveaux regards. Amener le corps dansé sur de nouveaux territoires.

Et que signifie et implique «avoir» sa compagnie ?
Selon les moyens dont elle dispose, une Compagnie chorégraphique professionnelle peut exister de deux façons : soit épisodiquement, le temps d'une création de spectacle puis lors de la tournée du spectacle, soit de manière permanente, avec des artistes impliqués au quotidien dans le travail de recherche chorégraphique, de création et de diffusion des œuvres. Nous sommes dans le deuxième cas. Notre Compagnie existe et œuvre donc toute l'année, tant sur le terrain de formation et d'ateliers ouverts au public que dans l'élaboration des spectacles et des tournées. L'équipe actuelle travaille à Béziers tous les jours, en fonction d'un planning annuel prédéfini.

Quels sont vos projets de tournée ?
La diffusion de nos spectacles et de nos œuvres, au-delà de son importance souhaitée dans notre projet artistique, est ce qui nous permet concrètement de continuer à exister et à avancer. Les tournées viennent fréquemment en compensation de l'absence ou du manque de subventions territoriales, afin d'équilibrer, lorsque cela est possible, notre budget de



« Traces – 96 détails », les 24, 25 et 26 janvier (saison Montpellier Danse)

fonctionnement. Au-delà de nos tournées en France, notre Compagnie a depuis 2000 l'incroyable chance de diffuser régulièrement ses spectacles à l'étranger, soit à ce jour 25 pays visités par nos spectacles. Nous travaillons donc actuellement à concrétiser parallèlement nos tournées françaises et nos diffusions internationales, lesquelles seront pour 2007-2008 majoritairement concentrées sur l'Asie, l'Amérique du nord, l'Amérique Latine, et l'Europe. Nos tournées, notamment à l'étranger, nourrissent à la fois notre réflexion et alimentent la base de données dans laquelle nous puisons pour constituer nos œuvres. Ici ou ailleurs, et parfois même très loin de Béziers, nous prenons toujours le temps de créer, filmer, d'enregistrer du son lors de nos déplacements à l'étranger, afin de s'en servir ultérieurement. Notre nouveau spectacle est d'ailleurs construit à partir de ces traces, glanées lors de ces tournées étrangères, qui restent des instants forts pour nous tous ici. La rencontre de regards autres, géographiquement et parfois socialement éloignés des regards français, est ce que je préfère dans nos tournées à l'étranger. Au-delà même du plaisir de voyager d'un bout à l'autre de notre planète, le fait de présenter nos spectacles au public de Sao Paulo, Jakarta, Los Angeles, Bombay, Mexico, Hanoï, ou Bangkok, nous permet de vivre des sensations scéniques et humaines intenses, neuves, et surtout de recueillir ces regards « d'ailleurs », et les avis que nous y recevons, comme autant de bonnes raisons pour pérenniser notre souhait de créer « pour tous », sans élitisme ni ostracisme.

Quelles conséquences cela a-t-il pour vous d'être à Béziers ? Avantages, inconvénients ?
J'aime le Sud, donc sur un plan quotidien, et au-delà des mes racines puisque je suis né ici, Béziers est une ville agréable et facile à vivre. Professionnellement, le seul inconvénient a toujours été un manque de visibilité de notre équipe, puisque sur un plan national, un chorégraphe est plus « visible » et repérable lorsqu'il est à Paris ou dans une capitale culturelle régionale comme Marseille, Lyon ou Montpellier. Mais cette donnée a changé, dès lors que le public français a pu découvrir notre travail grâce à Internet, puis sur scène lors de nos tournées en France. Nous sommes désormais très liés à Béziers dans l'esprit du public et des réseaux professionnels. Je pense que les diktats géographiques pour achever un projet artistique, appuyés parfois de proverbes poncifs tels que « nul n'est prophète en son pays », sont actuellement en perte de vitesse. Nous en sommes la preuve tangible.

Que pensez-vous de Béziers d'un point de vue culturel ?
Je trouve que la Ville, lentement mais sûrement, va depuis plusieurs années vers une expansion culturelle évidente, à la fois dans l'appropriation des outils culturels et des équipements de la Ville par le public, que par les propositions culturelles et artistiques qui sont faîtes ici, tant par le Théâtre que par d'autres opérateurs associatifs ou privés. Il y a ici des acteurs culturels importants, qui méritent attention : je pense notamment à Pierre Astrié et Denise Barreiros de la Cie Là-Bas Théâtre, qui mènent ici depuis 15 ans un projet artistique de très grande qualité, dédié tant au terrain qu'à la scène. Dans cette optique, la prochaine venue de Jérôme Savary et l'ouverture de son projet culturel aux Franciscains, est une bonne chose pour Béziers et les biterrois, une excellente opportunité pour la ville de faire valoir son identité culturelle et ses choix, identité à laquelle nous participons de fait, et avec plaisir, lorsque nous quittons la ville pour présenter nos œuvres ailleurs et parfois très loin : à chaque fois, Béziers est inévitablement associé à l'image de la compagnie, et je suis heureux de participer ainsi à la communication de son identité. La Ville a d'ailleurs compris que nous faisions partie de ses acteurs culturels importants, ceux qui sont ici , qui « font » ici, qui vont montrer « ailleurs », et qui reviennent pour continuer à faire « ici ». La Ville nous apporte un soutien fidèle depuis 2003, tant sur la coproduction de nos spectacles que sur des aides ponctuelles de soutien officiel à nos tournées étrangères. ■

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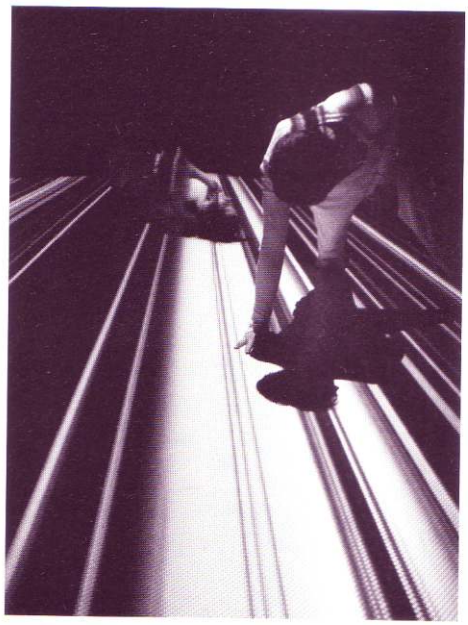
MULLERAS
quand la danse fait place Net

Depuis dix ans, la Compagnie Mulleras s'est inscrite dans un processus de création reliant le web et la scène. Un travail de transversalité autour de la chorégraphie, de l'image et des nouveaux médias dans lequel s'insère encore une fois leur projet en cours, *96 Détails*.

Depuis 1996, la compagnie biterroise Mulleras affirme une certaine continuité dans des élaborations chorégraphiques particulières. Au fil de projets conçus à la fois pour la scène et pour l'Internet, la modélisation des différentes pièces, performances, films réalisés par la compagnie offre au spectateur et à l'internaute des propositions artistiques aussi riches que contrastées. Une façon de redéfinir les contours d'une nouvelle expérimentation multimédia reliant art numérique et art vivant.



Les cycles de la Compagnie Mulleras

Pour la Compagnie Mulleras, l'idée d'offrir au public un parcours varié, usant de multiples supports, se servant du site web, comme d'un véritable laboratoire pour leur travail chorégraphique n'est pas nouvelle. Couple dans la vie comme dans la danse, Didier et Magali Mulleras ont établi leur connexion multimédia en 1998 avec *Mini@tures*, leur premier cycle de créations hybrides, scéniques et numériques.
A l'époque, il s'agissait déjà de réunir dans un même concept une performance danse-vidéo destinée à la scène et 100 micro-métrages dansés disponibles en libre consultation sur le web. Par le biais de ce projet étalé sur trois ans et trois phases de création successives, les Mulleras entendaient illustrer la liberté du spectateur, apte à participer à son rythme à un échange inédit entre la danse et l'image via les nouvelles technologies de création (vidéo) et de diffusion (Internet).
Initié en 2002, leur deuxième cycle, *Invisible*, abondait dans le même sens. Mais son articulation entre réalité corporelle et virtualité numérique révélait une tonalité plus sombre, moins poétique et humoristique. Les films et modules interactifs accessibles via le site de la compagnie se faisaient plus longs, plus torturés.
Le spectacle scénique, ainsi que les installations et performances éclosant autour du projet privilégiaient une approche beaucoup plus fragmentée, jouant sur des thématiques d'isolement ou de confrontation. Sur scène, les 4 interprètes interrogeaient le spectateur sur sa capacité à renouer les fils d'une construction narrative. Sur le web, les différents films s'appréhendaient comme les pièces d'un même puzzle étrange.

96 Détails

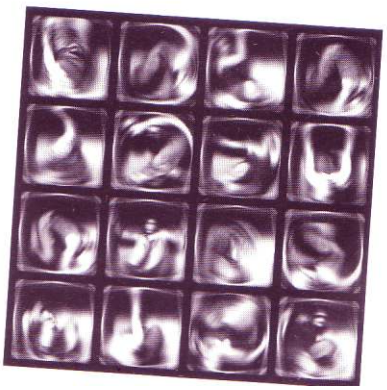
96 Détails, le nouveau cycle de créations scéniques et numériques de la compagnie ouvert l'an passé procède toujours de la même idée de fragmentation et d'assemblage.
Pour traduire visuellement l'idée de combinaisons des différentes facettes d'un même projet, Didier et Magali Mulleras, assisté depuis dix ans du réalisateur multimédia Nicolas Grimal, ont conçu en page d'accueil de leur site un cube interactif présentant sur chacune de ses six faces, 16 espaces de découverte, soit un total de 96 espaces de création. Un réceptacle qui contiendra à terme l'ensemble des expérimentations menées pendant le cycle. Ce principe de modulation cubique se répercute aussi scénographiquement. Deux pièces s'intégreront dans le cycle. *Traces*, la première d'entre elles, a déjà été créée en novembre dernier au Théâtre de Béziers.
Epousant les formes d'une face du fameux cube interactif, elle établit un envoûtant dialogue corps/image autour de la confrontation nodale entre danseurs, écrans et projections vidéos. A travers son décor en "kit", susceptible d'être adapté en fonction de la proximité désirée du public et des lieux d'accueil, elle interroge également la façon dont la danse peut investir de nouveaux espaces publics et se confronter à de nouvelles géométries architecturales.

Internet, un outil d'appropriation de l'œuvre

Il apparaît donc comme essentiel dans le travail de la Compagnie Mulleras de pouvoir jeter des passerelles fonctionnelles entre différents supports, médias, lieux de création et de diffusion artistique. Une démarche servie avec truculence par l'outil Internet.
Sur scène, les croisements de sources, essentiellement constituées par le corps des danseurs et les éléments graphiques ou filmés, sont désormais largement pratiqués; de nombreux chorégraphes faisant appel au multimédia dans leur positionnement artistique. Mais chez les Mulleras, l'idée de partage et de mélange va plus loin, car le vecteur médiatique qu'est Internet permet d'aller plus loin.
Pour *96 Détails*, comme ce fut le cas pour *Invisible*, le processus d'élaboration investit le web comme un champ d'expérimentation ouvert et privilégié. Toute la matière du projet y sera relayée au fur et à mesure de l'écriture, déclinant une véritable base de données sous forme d'images, de sons, de musique, de graphisme, de texte et d'infographie. Retravaillée sous forme de modules, elle offrira en temps réel au public, via l'interface du cube interactif, un aperçu fiable des étapes de création du projet.
Au-delà de la pratique artistique, c'est l'appropriation par le public de la création d'un projet via Internet que la Compagnie Mulleras cherche à stimuler. En cliquant, en fouinant, en fouillant dans la masse de documents, celui-ci devient le témoin actif de l'œuvre ainsi créée, et en quelque sorte son dépositaire.

Comme le disait Didier Mulleras dans une récente interview (l'Art-Vues, décembre 2006) : *nous travaillons la danse au-delà des scènes qui lui sont traditionnellement réservées, de même, nous proposons le multimédia en l'éloignant de son utilisation principale qui reste avant tout bureautique ou informative.*

Laurent Catala



Site: www.mulleras.com
Visuels: *96 détails* © Cie Mulleras

Montpellierplus
L'ESSENTIEL DE L'INFO
janvier 2007

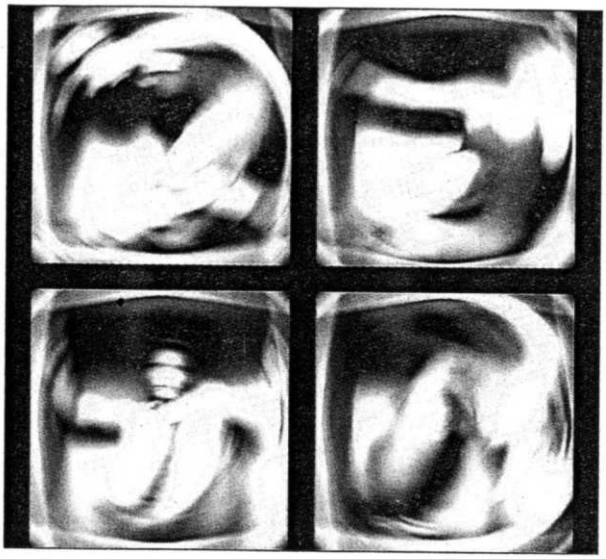
"96 détails" clap première

DANSE

MAGALI ET DIDIER MULLERAS DONNENT PENDANT TROIS JOURS "TRACES". UN TRAVAIL QUI BALAYE NOS REPÈRES

Magali et Didier Mulleras ont leur laboratoire sur les allées Riquet à Béziers.
Sous la bénédiction de Bruno Deschamps, le patron du théâtre, ils cherchent les clés d'un nouveau langage de la danse. On pourrait croire qu'ils vivent enfermés dans leurs certitudes. Mais non. Les Mulleras sont ouverts sur le monde. Leur travail est posé sur le socle de la création liée aux rapports corps / image. Dans le genre on a vu Lucinda Childs, le meilleur avec Dance. C'était il y a longtemps à Sète. Mais au bord du Cadre Royal, à part les joutes...
Donc ce soir, on verra "Traces". C'est le premier volet de projet numérique et scénique "96 détails". Trois ans de boulot en perspective. Le canevas est le suivant (on vous donnera dans notre livraison de vendredi le résultat sur scène). L'écriture de cette pièce explore l'idée de la trace, des traces de mémoires entre mémoire du corps et mémoire collective. La vidéo permet de faire naître un dialogue intime.
Le matériau est identique aux précédents travaux du couple qui dynamite certaines barrières. On va de l'art numérique à l'art vivant.
Magali et Didier Mulleras ont inventé un dispositif qui reçoit tour à tour image, lumière et danse. Le problème avec tout cela c'est que l'on reste, en lisant ces lignes, dans le domaine de l'intellect, alors que la danse reste dans le champ de l'émotionnel. Mais Magali et Didier Mulleras savent contourner cet écueil. On a vu avec "Mini@tures" et "Invisible" (plus sombre quand même). Deux créations qui ont posé le travail des Mulleras. Ces deux-là savent comment mettre les nouvelles technologies au service de la danse.

Jean-Jacques Sarciat



Une expérience à vivre au Chai du Terral.

- Chai du Terral, St Jean de Védas.
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idança.net

BRÉSIL / janvier 2007

Tecnologia a serviço da arte pela Cie. Mulleras

96 Details é uma viagem criativa projetada em 2006, com término em 2008, pela **Compagnie Mulleras**, (Beziers - França), dirigida por Magali Viguier-Mulleras (coreógrafa), Didier Mulleras (coreógrafo / músico), e Nicolas Grimal (filme & multimídia), o time que também criou mini@tures and INVISIBLE.

A partir de criações para a web, lançadas no site www.mulleras.com, para trabalhos em palco e projeções, a companhia continua a experimentar novo caminhos e elos entre Dança, Filme e Multimídia, investindo em novas áreas de trabalho artísticas oferecidas pelas novas tecnologias.

O projeto a longo prazo **96 Details** propõe uma fusão e interação de universos distintos (dança, música, vídeo, interatividade).

O resultado desejado é um trabalho artístico global, nômade e híbrido, onde corpo e dança são empurrados por uma fragmentação possível graças às novas mídias. Um conjunto de módulos artísticos capaz de funcionar próximo ou longe de cada um. Um trabalho polifórmico, que inclina suas unidades quase infinitamente; um quebra-cabeça a ser descoberto por fragmento ou por fusão de cada elemento.

A companhia apresenta o trabalho no dia 11 de dezembro, no Mônaco Dance Forum, em Monte Carlo.

Para saber mais sobre o projeto, acesse www.mulleras.com. Julia LIMA

DANCE INTHE DIGITAL CULTURE

by Maira Spanghero

Dance in the net. Any time, dance on-line.

The contact with the world wide web of computers has transformed the choreographic creation and the expansion of many artists. It is the case of the French **company Mulleras,** that developed "Mini@tures" (N.R: you find some images of the project at idanca.net's blog), one of the first projects of contemporary dance conceived for Internet. It is about well-succeeded mixture between choreographic language, electronic music, web design and computer graphics.

Developed in three phases, thanks to a connected team work, the work reunites small and short numbered videos, with less of one minute of duration. They are 100 micro dances, accessible in the site of the group, and plus the performance produced for the live scene. Using the net as stage, the creation process took in consideration the types of connection of the machines, download times and the size of the archive, parameters that had determined the creation.

Realized between 1998 and 2001 and shown in the main events of art and technology of the world, "Mini@tures" uses resources of the graphic computation and generates a dance that can fit in the palm of the hand! The most recent work of the company is "Invisible", where the aesthetic of the images gained a new organization and deepened the notion of interactivity in relation to the previous work.

Dança na rede. A qualquer hora, dança on-line.

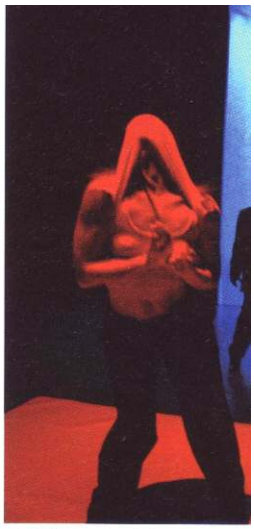
O contato com a rede mundial de computadores tem transformado a criação coreográfica e a expansão de muitos artistas. É o caso da **companhia francesa Mulleras**, que desenvolveu "Mini@tures" (N.R: algumas imagens do projeto, podem ser encontradas no blog do idanca.net) um dos primeiros projetos de dança contemporânea concebido para a internet. Trata-se de uma bem-sucedida mistura entre linguagem coreográfica, música eletrônica, web design e computação gráfica.

Desenvolvido em três fases, graças a um conectado trabalho de equipe, a obra engloba pequenos e curtos vídeos numerados, com menos de um minuto de duração. Ao todo, são 100 microdanças, acessíveis no site do grupo, e mais a performance produzida para a cena ao vivo. Pelo fato de usar a net como palco, o processo de criação levou em consideração os tipos de conexão das máquinas, o tempo de download e o tamanho do arquivo, parâmetros que determinaram a criação.

Realizado entre 1998 a 2001 e exibido nos principais eventos de arte e tecnologia do mundo, "Mini@tures" utiliza recursos da computação gráfica e gera uma dança que pode caber na palma da mão! O trabalho mais recente da companhia é "Invisible", aonde a estética das imagens ganhou uma nova organização e aprofundou a noção da interatividade em relação ao trabalho anterior.

intramuros
international design / n°130 / mai - juin 2007

Les *Mini@tures*, une centaine de saynètes chorégraphiques créées par Didier et Magali Mulleras et Nicolas Grimal



Invisible, dernière création de la compagnie chrorégraphique Mulleras

Le Web dansant

Depuis dix ans, les chorégraphes de la Compagnie Mulleras mènent une expérience unique de pratique scénique et numérique. Entraînant.

Le numérique a infiltré la danse, et celle-ci en a profité pour glisser sur d'autres pistes. Depuis dix ans, la compagnie de chorégraphie Mulleras, créée par Didier et Magali Mulleras, fait danser sur l'Internet des "électrons chorégraphiques" (www.mulleras.com). Faisant fi des contraintes techniques inhérentes au support informatique, ces précurseurs de la danse numérique ont commencé, avec la complicité du réalisateur multimédia Nicolas Grimal, à fabriquer des *Mini@tures* : une centaine de saynètes chorégraphiques, aussi drôles et poétiques que les Cake-walk de Méliès, dans lesquelles des danseurs affublés de grosses chaussures esquissent des pas de deux avec des doigts de géants ou des lettres de l'alphabet... Ces brillants numéros virtuels, accompagnés de performances dans le monde réel, ont ouvert la porte à d'autres écritures du mouvement en même temps qu'ils ont attiré l'attention sur leurs créateurs. Quatre ans après cette œuvre transversale, mémorable et légère, les chorégraphes produisent *Invisible*. Une création étrange - et sombre - dont la narration est une fois encore éclatée entre plusieurs supports : réseau, performance et installation. "Cette œuvre explore une autre facette de notre personnalité artistique", remarque Didier Mulleras. "Si *Mini@tures* parlait de la fragilité du corps face aux images, *Invisible* met en relief la notion d'ubiquité et la disparition de la perspective visuelle et identitaire". Sur scène, la danse est âpre et oppressante. Elle a pour cadre deux immenses écrans de projection, lames d'images enserrant un point de fuite hypothétique. Sur l'Internet, la danse s'incarne dans une série de treize films très courts. Enigmatiques comme un film de Lynch, feutrés comme un tableau de Hopper. Tournés dans neuf pays différents, ces "micro métrages" mettent en scène des chorégraphies fragmentées, parfois recomposées lors du montage, et, pour la première fois, interactives. Comme un chef d'orchestre, le spectateur peut se glisser dans cet univers illusionniste, lancer la danse, l'accélérer ou la ralentir, la répéter à l'envi. La nouvelle création de la Cie Mulleras, *96 détails*, qui sera "achevée" en 2009, fait la synthèse entre les deux œuvres précédentes. Composée cette fois-ci de quatre-vingt-seize histoires interactives, accompagnées de performances et de nombreux dispositifs scéniques, la chorégraphie se veut grave et légère à la fois. Mais si les créations scéniques et numériques s'élaborent de manière concomitante, les corps dansant réservent leurs premiers pas au médium Internet avant de se donner à apprécier dans le monde réel (spectacle Traces). De ces allers-retours de la scène au web, les chorégraphes ont appris à se libérer de certaines contraintes de production : "Il nous reste encore deux ans avant de terminer *96 détails*. Nous espérons conserver jusqu'au bout cette liberté d'auteur, et la possibilité pour le spectateur de s'approprier librement notre travail".

Annik Hémery

Dancing On the Web

For the past ten years, the choreographers of the Mulleras troupe have been performing a unique scenic and digital show....

Digital technology has infiltrated the world of dance. Over the past decade, Mulleras, the dance troupe created by Didier and Magali Mulleras has been rolling "choreographic electrons" on the Internet (www.mulleras.com). Undeterred by technical problems inherent in computer-based media, these pioneers of digital dance, with the help of stage director and multimedia artist Nicolas Grimal, created *Mini@tures* some hundred of choreographic playnets as funny and poetic as Méliès's Cake-walks, in which dancers accoutered with large shoes sketch pas de deux steps with gigantic fingers or alphabetic characters. These brilliant virtual shows, accompanied by performances in the real world have paved the way for other motion-based shows while putting the spotlight on their creators. Four years after producing this light-hearted and memorable œuvre, the choreographers created *Invisible*, a strange and dark production narrated with the use of several media. "This piece explores another facet of our artistic personalities," said Didier Mulleras. "While *Mini@tures* spoke of the body's fragility in relation to images, *Invisible* puts the emphasis on the notion of ubiquity and the disappearance of visual perspective and identity." On stage, the dance number is harsh and oppressive and is projected onto two huge screens. On the internet, the number is shown as a series of thirteen very short films, as enigmatic as a Lynch movie and as quiet as a Hopper painting. Filmed on location in nine different countries, these "micros" feature fragmented choreographies, which are sometimes recomposed during editing, and for the first time ever, they are interactive.

Like a conductor, the viewer can slip in and out of this illusionistic universe, start the dance number, accelerate or slow down its pace, or play it over and over at will. The new creation by the Mulleras troupe - *96 details*, which will be completed in 2009 - is the synthesis of the two previous productions. This time composed by ninety-six interactive stories and accompanied by other performances, the choreography is at once sober and light-hearted. Although the scenic and digital creations are produced simultaneously, the dancing bodies are first shown on the internet then presented in the real world (Traces). By going back and forth between the internet and the real stage, the choreographers learned to do away with some of the problems related to production. "We still have two years to go before completing *96 details*. We hope to be able to retain our independence as authors until the very end and allow the viewers to freely appropriate our work."

Dance Performance in Cyberspace
(transfer and transformation)

Paula Varanda

Appendix 2

n+n corsino / Soi Moi

Section 1 - interview with the company director Norbert Corsino, July 2010

Section 2 - summary of information displayed in the company's website

Section 3 - collection of press articles

1 Section 1 - interview transcript, with Norbert Corsino

This interview was done on the 15th of July 2010 in the office of the company in Marseille, France, with Norbert Corsino, the choreographer and founder of the company, who is co-director together with his wife Nicole Corsino. The interview was conducted as a semi structured informal conversation, of approximately three hours. After reviewing general principles that informed the research path traced with the company's work, which led to the current selected case study, we engaged in a discussion about various topics; in many cases they are transversal to different works of the Corsino's and these positions can then be useful to analyze particular pieces. In the interview I addressed the following topics: how different pieces relate within a common interest and professional career; thematic ideas informing the works; elements such as the body representation, the performers and the choreographic process; particularities brought by Motion Capture technology and 3D dance in virtual environments; audience control; medium specifications and their influence in the dance; the performative aspect of the projects; the web as a venue; and dance as an art without a fixed space.

1.1 Subject discussion overarching various projects

1.1.1 Working with the dematerialized, why and how, from early works to the present

Our company has a reasonable history of a few good years by now; so things have developed smoothly through those years. At the start we were working with shows on the theatre stage and by then we already used video, image, song and comedy for our pieces. We had from an early stage this idea of working dance as a multidisciplinary performance. Our recurrent themes were coming from literature about myths and fantastic tales; not as sources that we wanted to directly illustrate, but as something behind that would inform the imaginary fictions and environments for the pieces.

We also saw choreography as a way of writing (*écriture*), and we wanted to write more and more, and this brought us closer to the moving image. With film we could construct movement scenes and linking them with signs and space, colors, etc. While working with video we found lots of interesting results, that gave us a lot of joy; our first film, *Anna de la côte* (1986), was very well received by the general public, the professionals and the press. This was surely not a video-dance though. I don't like that term to define my work. I don't think the medium where we present does necessarily classify the kind of work; so I also don't like theatre dance or opera dance either. But this work with video and this film were a sure step into what you call the dematerialization of our work.

I have to say I don't like dematerialization as term either, to define what we have been doing. When we see cinema, like in a Fred Astaire movie, we don't pose this question: of whether it is dead or alive. The image is so strong that we don't think if the person is dead or alive; this is a problem of the terminology used for live arts (arts vivants, arts mortes). Instead we call our work as **choreographic fictions,** referring to the meeting between the fiction featuring characteristic of cinema and the choreographic treatment of dance.

In the 1980's, there was Le Théatre de La Dance et de L'Image in Marseille, and the directors commissioned us, with some financial support to make two films; they were also connected with the cinematéque de la danse in Paris. We soon realized that if we wanted to continue with films and choreographic fictions, we could not go back to the stage, we could not continue doing one thing and the other. It is very rare, when you have image on stage (opera, singer, or dancer, or musician) that we look at the person; we look more at the image. The image is more powerful, and absorbing; Bob Wilson does that, but it is quite difficult to achieve a good result. Or else the dance is cinematographic. I think Pina Bausch is cinema-dance, the scene is so strong that we keep present the scene even when it is gone (which I think is a quality of cinema).

1.1.2 Installations instead of the flat cinema screen

In the 1980s period we made a series called *Circumnavigations* (1991-1993), which was created as a tour around the world, gathering images at a few different towns (Lisbon included). The choice of those places was related to things that happened there, people we knew, etc. We worked with local people and we wanted

to meet our potential audience; that's how we started with the installations. Moreover, we wanted to have images of dance but with structures that could move and be displayed in space. This was the sort of contact we aimed to have with the public; they could go around the structures, choose what they would want to see, for how long. We were not performing, but we were there in images and in the middle of the audience.

With the installations we wanted to explore the spaces that are available for dance. The spaces were amplified by the images themselves, particularly when we projected the dance in the same space where we filmed it. The public could have different points of view over the dance, experience the sense of different camera shots, and explore the architecture; we wanted to build, with the dance images, architectures within the existing architectures.

1.1.3 Beginning to work with Motion Capture technology

We started using Mocap in 1993, due to a Villa Médicis grant that allowed us to research and work with very expensive resources. This technology enabled us to think about 3D and working with 3D scenes (*cadres*). First we started exploring Life Forms software, not to generate choreography (we had made that on studio), but to develop choreography in space, after importing the real movement into computer.

Totempol (1995) is an example where we explored the idea of introducing a physical double in the computer, but we were not just involved with the technological demand and a *bricolage* aim, trying out the tools for the sake of the experience; not at all. *Totempol* is a work that has to do with totems; totems are representations of transformations of the individual: a person in fish, for example. Here we experienced and tried out the idea of double, which in Canada is completely different than in Europe; the idea of other is different, we accept the other because the other is different. The technology allowed us to explore that theme, this conceptual option is what grounded the engagement with motion capture.

We found Mocap a very interesting technology because we could move the dance straight away into the architecture. By keeping the form of the dancer, we were trying to keep the signature of the movement. If you know the dancer, when you see it turned into points in the machine, you can say this is that person, that dancer. Mocap can keep the movement signature intact.

The support to do this work is dematerialized, but nothing else is… the thing is materialized differently, not dematerialized. From the beginning of our choreographic and artistic research we have always worked with digital labs, experimenting with numerical scenarios that we could insert in the films for example. *Un Avion Presque* (1989) is a film about the aerodynamics, dance in the horizon line, and we searched for stereoscopic images, which we wanted to film. We had to find computers that could deal with those images. In other cases we worked with a plate, the images were not fractal. Despite using the digital, we always depart from live things; we don't work with synthesis. With the different media we combine those images and captured data, and we make something new.

1.1.4 Interactivity and visitor's control

In *Seule Avec Loupe* (2006) we made the work with the support of IRCAM (Centre Pompidou) for Ars Numerica and we worked with a very sophisticated sound system; it reproduces sound as we hear it in a real natural environment, so it is good for immersion, and this needs to be thought about in composition. We also had a screen surface around the whole space (made of three synchronized projections), very large, and sensors that detect the movement and speed of the spectator, and then sounds and images react accordingly, they are programmed to react. The speed and direction of the dancer and the camera's POV can be changed.

This piece is part of what we call choreographic navigations, which is how we call our interactive works where the audience can move with/through the work and the people's behavior can affect the work, rather than a static and finished screen image.
It's a deliberate artistic choice that the spectator cannot change the dance itself; we don't want to do that because there is a lot that can be done already from the given options. So many interesting things related to the way you see the dance, you trigger the start of the dance, the end or the speed, that I don't consider necessary to change the dance, the choreography. There is poetry on that, on the environment's change. Once you start changing the dance, trying to make the dancer do something different, you start interfering with the body. This makes no sense for us.

The spectator can interact with the environment and the whole of the artistic process, but, because it is dance, it does not mean that he or she can interact by changing the performer's body. What the spectator can do is move his/hers own body, in reaction to the audiovisual stimulus; locomotion makes the camera POV change, so that stimulates the spectator to move.

I think there are three different roles in the piece: the spectator that watches what is going on; the performer that acts inside the screens; the spectator that becomes a dancer, he/she becomes part of the "show" in artistic terms. Otherwise, if we can move the dancer it is like animation; the body is animated by the spectator's action. Its is exactly the same thing you can have with the pets, so we have to choose, we watch it or we manipulate it, we are with them or we are manipulators.

1.1.5 Themes for the works

We have references that direct how we develop the works, but we always settle down their inherent concepts afterwards, never before. There is a theme that informs the different sources, which will define the choreography, the music, images and the spaces where it all happens, but we don't want to demonstrate anything very concrete. We aim for the poetic, rather than the narrative. *Seule Avec Loup* (2006) came from the little red riding hood story; the wolf, the girl and the granny are the same character, as three different ages of the woman. In *Captives 1st movement* (1998) we were inspired by the I-Ching – which might be the first digital basis of the world - looking at building the idea of traces using the hexagrams to make choreographic phrases; the bamboos, never change diameter but have different heights and there is a vegetal environment as a scenario. In *Captives 2nd movement* (1999-2000) we departed from the Antigona, the women that says no and here there are 3 women that say no to their usual settings; from the city, the initial urban environment, we move to desert spaces, It was the beginning of the Kosovo war.

I believe that the relation between dance and technology has to be seen in a more organic way. Think of bacteria for example, they cannot move; the bacteria is obliged to work something out in order to reproduce itself. To move in space and time the bacteria invents a technology; in order to survive it has to adapt. To survive biologically it has to invent technologically. When we talk about dance and technology it is worth remembering how the live world works – the bats that move without seeing, the trees and how they grow and branch, the bacteria and their strategy to live – this helps us understand that we are technological entities.

1.1.6 Choreographic process with Mocap technology

We use the software Maya to make the backgrounds of our spaces and the storyboard; the ideas and directing are always influencing one another, but when we film, the choreography is already decided as well as most of the project.

First we define the choreographic sequences, we go to a studio as one does for the theatre, and we capture it. The choreographies are always small, and this comes from our early experiences with film. When working with film we were already considering short choreographic sequences because we realized that after filming the dance for a certain duration, we start focusing on the dance isolated and loose the connection between the dance and the image. Also there is a particular time, choreographic, that suits the image in our view, if we respect the same time of a show this wont work, we have to work with a different, more condensed time.

With Mocap there are limitations to be considered. If Mocap gets data mixed up because of the body going to the ground then we make a choreography that does not use the floor; or else we have to find a way of going to the ground that can be compatible with the system. We decided not to use the floor much in our work, even before we started using Mocap; therefore we did not find ourselves very bothered with that restriction. In order to choose what can we use from what is captured we make several takes and then we chose what was better, as in a filming process. We don't choreograph the data, inside the computer.

There is a big work of camera movement afterwards, which can be considered a choreographic layer. But that comes after capturing the movement, and helps creating a watching path over the dance. We recently tried to work with a single camera movement without cutting, only one take each time, the only editing is the change of camera that has a different shot angle or size. After capturing we can circulate between the different sides, this helps seeing what works or not, and a few things progress at the same time.

1.1.7 Body and performer: movement, distribution

We associate the movement to one body, the body appears by its kinetic presence, and each body has its own signature.

We can play; it can be amusing to put the movement of one dancer into the body of another dancer, but that's all, and we don't make that much, because this serves nothing for us. It would be relevant if we wanted to clone… we could do that. Distributing the movement of one body into others and creating different bodies (cloning), can be done but we are not interested in that.

We have some choreographic sequences, we import that with the Mocap, we have a skeleton, we put that skeleton in a skin, an envelope, which is represented by polygons. This clone might resemble or not the original, but there are not many changes we can do. Some things just don't work, some problems appear that have nothing to do with dance. Yes we can put the movement of the real dancer into the clone of a dinosaur that will dance. But that is not for us, it is for Disney. If it's case, I think I would be more interested to ask the dancer to try and move like a dinosaur. If it is dance that we want to work with, it will be dance that we show, represented by a human body.

1.1.8 Body and performer: appearance

The choices of appearance are informed by the purpose, the theme, the idea; we can then decide the clothes, the size and color of hair. And we can change gender if we need to. But we have not done that yet. We thought of doing that for *Soi Moi* (2009) as a choice feature: one could choose between the feminine and

masculine in relation to its own gender. But we did not do it because of technological issues, the different bodies required different polygons and this would interfere with the weight of the files and the functioning of the app.

Weight is an issue here, and that is also why I think this work is not dematerialized; there is weight in the virtual, although not the same as gravitational weight. Data has weight and if something is very heavy it won't allow the system to move properly, it will delay the system.

The body that was captured is always the same, we can change its aspect (dramatically that will change something, like making it old) but the way of lifting an arm does not change, only the appearance. I think that this is a false problem, not very important, the issue of translation of movement into data is very simple.

I'm more interested in the change of gender, it is quite incredible to see a body that moves differently because of gender (like in a men, the basin is more straight and long,) being put into a more round, different skeleton proportion of a woman. Now the fact that the woman is blond, or brown, older or younger, that really depends on the story, but because we do not work a lot in dramaturgy, we are more interested in kinetic poetry.

Often the bodies in our work are dressed pretty much in studio and casual slim dance costumes. We can decorate more, like for example the long dresses and flying hair of Pina Basuch's performers as you say, but that requires a different artistic direction and it is also much more demanding in terms of a team (we are six and we would have to be a 100). The accordion in Baush's *Nelken*, that you gave as an example, would be a 3D object that needed animation; to make the hair move means having a lot of people behind the computer , because you can't capture that with the current Mocap system; for the dress, that would mean lots of effort involved in moving just the dress. As an example, the film Avatar had 3000 people working on it.

We don't go to much there because it is too demanding and it is not really the goal, the drive of our work. If we really wanted to go into that then we would film in 35mm. There are things we can do with 35mm cinema and stage that we cannot do here, then here we have to do other things, those we can do with this.

1.1.9 What 3D brings to the dance on screen

3D brings the possibility of navigation, in spaces and environments that cannot be built/delivered on stage; we can make other universes, and we can insert camera movements, changing points of view in those environments. We are now also trying things with speed: filming very sharp, fast and decomposed sequences and then slowing them down to the limit as if they are nearly paintings, and we are working with the nude (naked clones). We are realizing that when we see the nude in very slow motion, we don't see the nude anymore. We found out a different approach to the representation of the naked body, treating subjects that are quite old in the arts, like nude and painting, which we can work out differently due to the use of new technologies.

Technology brings different perspectives to the same issue. But this does not mean that we must pursuit a technological enquiry. We have to know what we are addressing before; I think one must take a lot of interest about the live (*vivant*) to then work with technology. I don't mean necessarily the emphasis on the flesh. That is a bit boring sometimes.

1.1.10 Contingencies in the creative path

There are contingencies that come from the normal process of developing a project. Some things we cannot imagine beforehand but they show up while the project is happening. And then we find solutions for those unexpected things. We are interested in working without a model, without to much to frame the work. *Soi moi*, for instance, we consider it a project of live art (*arts vivants*).

We throw ourselves in spaces that are technological, yes, artistic yes, but are not yet referential, they are fairly unknown, so we are exploring, in the same way as if we were working for a stage production. We do research with our practice; we think of something and we say lets go there because there are not many references for this yet, and I find that there is something unique, and magic in that moment. It is some sort of premiére experience but with the projects, so we draw different challenges each time, but we know by now that we can trust what may come, because of our experience.

1.2 Project discussion - *Soi Moi*

In this project we wanted to promote self-awareness of the audience's own body, by manipulating the device where the other is performing. The body expands the tool (*outil*) and brings poetry to it. We transfer an artistic work from a space where the audience goes – like an installation site or a theatre venue - to a space that is in your own hands. It is an experiment that is really related to the features of the device: the I-phone. For the first

phase we made it as a portable topology, but it can be developed as an installation (a future project which is presented on a video available at Vimeo). Now the work is available at the Apple store as an App you can download and we had approximately a 1000 buyers so far. The Apple store does not have an art category, so our App is classified as entertainment.

The work has twelve sequences, and in each there are different possibilities to be explored, related to the features of the I-phone. You can take pictures and use them as a background to the dance; selected a tune from your own music library; change the camera's POV over the image; blow soap balls that fly over the dancer; conduct the body floating and drawing on top of a pre-set graphic or a picture background, etc.

1.2.1 Choreography, body and sound

We made the dances as a whole, in complete sequences, before capturing, so there was no editing afterwards within the computer and the character design software. When we made the choreographic phrases we had to consider the vertical screen and therefore shot size; so we could work more in depth and vertically than sideways and horizontally.

We made that with particular things; we used a harness, but because we loose it during Mocap (it did not have tracking balls so the object was not captured) in the final output of moving data it was not seen, therefore as if not existing anymore. The result is that the performer's elevation looks like a natural elevation from her own body effort. We did not elevate the body in 3d space afterwards, so this elevation was actually done in the real moment of capturing.

There was also a second character, who lifted the first role performer in some occasions. We thought a lot about this: should we keep it? Should we not? But in the end we decided to keep this as a solo performance, which would relate with the single user; so we erased the second person (in the software).

The whole process is a very different way of doing choreography, even from the installation experiences and the film experiences we had before. In terms of background, clothes and sounds that we have imagined, we developed much more what we could do afterwards; but the dance, the performer doing the choreography, that stays as it was achieved in the original capturing moment.

There are sounds appearing in most of the sequences; it is this music and these sounds but it could be others. The movement was recorded in silence, so the body seems to be dancing with the music and not on top of the music. The brain makes the adaptation, so it appears that the sounds were done for that particular choreography, but it was not like that.

1.3 Concept discussion: the web as a venue, why not?

We have not made that; we have not explored the web, yet, because we have decided to research and work in some other things; it's true, we could do something for the web. We know artists that have made a web-hotel project, "self room/world", and in each room of the hotel there are events where visitors can go to that room; they provide conferences, dance interactions… and they invite other collaborators to participate with content. We have been asked to do something for that but we have not yet been able to answer. I know the work of Didier Mulleras, which I think it is very interesting. They explore very well the square of the screen and the web. But is that interactive? Not really I think… it is quite limited…

I think that the web can give place to interesting productions, but that it may become a place for many productions, I am not sure, because there are so many other possibilities (as ways of presentation) available, and there are quite a lot of things we can't do when we work with the web. For example, the work of Mulleras is already recorded, we can intervene as an audience, but it is already recorded. I think it is much more interesting if the web can become something performative, but that is if it is related to the live presentation. Otherwise, what can people take form visiting a site, and reach an application…. You already have a lot in you tube.

I certainly see the web more as place for telematic exchange, people can see each others, communicate… but what that may bring different than another kind of work, as something that is not already developed in the live performance or video, I don't see, I don't know. I don't have an answer. We cannot decide just like that that the web may become a site for creation… The Mulleras' project worked ok, but I don't think that is

enough to rove that the web can become a space for creation (*éspace de creation*). There is so much already showing on You Tube….

Although of course the dancers can be present there… there is no single place for dance. Dance is there, where it shows up. We have to see how to use it. It is interesting. In the same way we have to think how we do a piece for stage or video, we have to think of what the "medium" or place of presentation implies. In this case the weight…. In a stage details are often lost; in video long shots may loose power…. This has all to do with the context one wants to work within, a professional path, particular experience and skills, budget etc.

In terms of what the audience may or not control, if we consider a kind of telematic exchange where people can participate with their own dancing, I would say that the camera that enables people to enter the web space should not be manipulated. Mastering the POV is crucial, and changing it changes the work completely, it's an essential part of the work / authoring, which should be kept in the artists' hands.

1.4 Concept discussion: an art without a place

Dance is an art without a specific place, it was always hosted in spaces from other artistic disciplines: the opera hosted the ballet for example; that was supposed to be temporary… the same happened with the theatre space. In fact, even if we create today venues for dance, in a historical sense dance does not have its own spaces and I think we should take advantage of that. Dance creates the site at the moment it expresses itself. If someone starts dancing in place then that becomes a site for dance. Yes we can say that about other arts, like music, or theatre, or performance art, but with dance I think this is different because there is a very strong relationship to space. The body moving is always linking to space in terms of what is doing to/in it, in terms of designing in the space.

We can choose different representation spaces (the web, a smartphone, the stage, or wide screen), where dance may exist even through text, design, painting… but we have to work dance in relation to the space we have chosen to present it, and I mean not only in geometrics terms, but also in conceptual terms: what does it say and what are the technological possibilities. We don't make a same dance for a small TV and for the big screen. Field depth and dimensions are very different and this is part of the work itself.

1.5 Challenges for the new generations

Scientists have measured the speed of the pulse of teenagers, and they have a speed that is superior to the previous generation; thus we say they are born digital. They don't have the path we did of something that existed previously without and now is in the machines. For them, lots of things have started to exist in the machines themselves. They were born with that. They go directly into the digital, they did not have the steps into the digital that we had.

But is it possible to go directly into the digital in the case of dance? No it is not. It is like other fields, it is not the web that makes you a researcher, a writer, a composer, etc. It is your real experience of life and disciplines; where the web may be part of. For example more democracy gives more Internet, but more internet does not mean more democracy.

Things like the devices, the software, the apps, the networks, they are available, but you can only do what you know and according to how you master the techniques. If you don't master, you don't do much. It is quite difficult to work with both the art-specific skills and the digital technology; if you don't know you will go into very easy things, therefore basic, and therefore not in depth, like you need for the arts.

There is a system set up to help people doing collages and programming, with simple tools to make demos for YouTube for example, but you don't become a cineaste because of that. Now you can show everything you make, but that does not mean you made a progress within an artistic enquiry, that you have experienced and tested through the technologies, developed a personal approach. You can easily buy a camera, record, edit and go into Youtube…but that is all the digital technology gives to you: easy to access and work with, but it does not give you the apprenticeship, you need a particular interest, curiosity and live experience.

2 Section 2 - information displayed on the company's website

This section regards a short compilation of information provided by the company in their website www.nncorsino.com

2.1 The company

In http://www.nncorsino.com/en/n-n/biography [accessed 10 August 2014]

Nicole Corsino & Norbert Corsino are choreographers and researchers. Interested in the kinetics of bodies and landscapes, Nicole & Norbert Corsino explore areas where dance can appear suddenly and be written to show how the movement of bodies modifies them. They change dance performance spaces to show their choreographic fictions in the form of films and installations, particularly with the series of seven fictions on seaports, called *Circumnavigation*.
With *211 jours après le printemps* [211 days after the beginning of spring], N + N Corsino propose a new vision of their work, in which image, sound, and soon text will combine in original new sensorial navigations. In 1996, their work *Traversées* [Crossings] was commissioned by the French State. Winners of the *Villa Médicis hors les murs* extramural prize (1994) for research into the *Life Forms* choreographic composition software, N + N Corsino created the film *Totempol* in Vancouver, in which they hybridize real-life dancers with digital dancers. This was the prelude to 3D and to the cloned performers of *Captives 2nd movement* (2000). Their research exploits the possibilities for virtual dance performance through the unique use of the new forms of technology. After *Topologies de l'instant* [Topologies of the instant] (2001) and the recent *Amorces intimes* [Intimate Beginnings]*, Seule avec loup* [Alone with Wolf] – a 3D interactive choreographic navigation created in collaboration with IRCAM, Arsnumerica and IRISA – features the WFS (Wave Field Synthesis) sound system. Research and development of this project are supported by RIAM (Audiovisual & Multimedia Research & Innovation Network). *soi moi* [self as me]*,* choreographic navigation, was created for the iPhone (2009).
Their works, a series of installations, have been presented in international tours, notably in Shanghai, Canton, Hong Kong and Moscow. Nicole Corsino & Norbert Corsino are *Chevaliers des Arts et des Lettres* (a national honour awarded on 1 January 2002).
First winners of the CMA-CGM Foundation Prize(December 2007). They were artistic directors of Ars Numerica, the European Centre for Digital Arts (2007 - 2009). In November 2011, with their work *MUES*, they were present at the Cannes International Dance Biennial, and they were associated artists in the Centre des Arts, Enghien-les-Bains, during the first quarter of 2012. Their work *Extérieur jour* [Day Exterior] will be produced as part of the programme of events for Marseille-Provence European Capital of Culture 2013.
*Bangalore fictions,*their last choreographic interactive navigation will be presented as an installation as part of the *Bonjour India* Festival : New Delhi (National Gallery for Modern Art) and Bangalore (SKE Gallery) in March 2013, and it will be created on the international level by means of an application for digital tablet in october 2013.
The 19th october 2013, n + n Corsino have opened scene 44, a European scene for choreographic creation and digital innovation, situated at Pôle Media - Belle de Mai, Marseille.

n+n corsino team
choreographers & artistic directors: Nicole Corsino, Norbert Corsino
dancers: Ana Teixido, Stefania Rossetti, Pooja Purohit, Revanta Sarabhai
assistant: Florent Magnani
legal adviser for productions: Aurélie Corsino
software developer: Samuel Toulouse
2D & 3D scenographic design: Nicolas Ballu
2D & 3D graphic artist: Anaël Seghezzi
writer: Claudine Galéa
music composer: Jacques Diennet
scenographic lighting designer: Pascale Bongiovanni
general technical production: Gilles Marchesi
technical : Vincent Drouhot

2.2 List of works

In http://www.nncorsino.com/en/n-n/background [accessed 10 August 2014]

2.2.1 Choreographic navigation

Bangalore fictions, interactive choreographic navigation, creation National Gallery for Modern Art, (NGMA), New Delhi 2013 and it will be created on the international level by means of an application for digital tablet in october 2013
MUES, navigation chorégraphique interactive (creation festival international de Marseille) 2011
soi moi, *navigation chorégraphique sur Iphone*, 2009 (nomination 3ème Edition de la Nuit des Médias, Paris; prix de la création mobile video art, Festival Mobile Days, Paris
Shama (création Shama Building, Shanghai) 2007
Heightened fictions (création SK Telecom Building, Séoul) 2006
Seule avec loup (création Centre Pompidou, Paris) 2006
Amorces intimes (création festival international de Marseille) 2004
Topologies de l'instant (création MAC, musée d' art contemporain, Marseille) 2001-2002
Captives, 2000
Traversées, (création au centre d'art contemporain de la Ferme du Buisson)
Commande Publique de l'Etat, délégation aux arts plastiques, (ensemble de cinq dispositifs) 1996
211 jours après le printemps, (création au musée de la Vieille Charité, Marseille) - grand Prix du festival des arts électroniques de Locarno

2.2.2 Choreographic fiction

7 scénarios de papier, 2003 (ENSAD)
Captives (2nd mouvement), 1999
2001 (prix de la création, festival l'Immagine leggera, Palerme; nomination pour le Medien Kunst Preis, ZKM) Karlsruhe
2000 (prix Pixel Ina, catégorie Art, Imagina; prix de la création. Dance Screen, IMZ , Monaco; prix de la création au Media Danse Festival de Valencia; prix de la création musicale, catégorie multimedia, Bourges; mention spéciale Visual effects, Ars Electronica Linz; mention spéciale, Il coreografo elettronico, Naples
Captives (1er mouvement), 1998
H H H, 1997
De la vitesse des éventails, 1997
Totempol, 1995, sélection Imagina, 1995 (Mention spéciale Grand Prix Video Danse; Jerome Andrews, forwards and backwards, documentaire, commande SACD 1994
Circumnavigation, série à épisodes 1992-1994 - Marseille, Trieste , Rotterdam , Riga, Lisbonne , Vigo, Vancouver (mention Spéciale Grand Prix Video Danse, Paris; prix de la création de la ville de Strasbourg; prix européen de la création, Estavar)
211 jours après le printemps, 1991
La Collection, 1990 (mention Spéciale, grand prix Video Danse)
Un avion, presque au milieu du lac, 1989 (prix VideoArt du musée de Céret)
Le pré de Mme Carle, 1988 (M.I.D.E.M., Cannes)
Anna de la côte, 1986 (1er prix de Fiction, Festival du Grand Sud)

2.3 Soi Moi – portable installation (2009)

in http://www.nncorsino.com/en/creations/moi/8 [accessed 10 August 2014]

2.3.1 Synopsis - A sensitive navigation in harmony with the iPhone.

The poetic abstract kinetics of bodies and landscapes are augmented by the tool. In return, the specifications of the object held in the hand are developed through interaction engines.
Soi Moi (Self as Me) is a portable installation that provides a perception of one's own body, the body that is holding the iPhone, which is more *friendly*, in the sense that a real consideration of the sensible physical intelligence of oneself does not always happen. Fifteen interactive sequences of 1 to 2 minutes form the basis of the scenarios.
In *Soi Moi* (Self as Me), motion capture choreographic sequences play with invisibility: the absence of an object or a partner creates unexpected physical situations. Technical processes emphasize the intention when they entail disappearance – or, more precisely, removal: that is, removal in the sense of alleviation or abduction.
Beyond the words of the title *Soi Moi* (Self as Me), the construction of internal and external pressures invites some escapes towards a form of "*tensegrity*" – tensile integrity, which is closer to biology and architecture than to shamanism. We like to think that choreography, music and sounds, scenography, light and images form parallel scenarios in relation to a chosen central theme. None of them is worked *a priori* as an illustration of the other or treated as a direct application. The same applies to the interactive mode. The cartography of representation is not superimposed on the user's perceptive cartography: they correspond to each other in an appropriate language and a relational game engendering a narrative form. (Nominated for 3rd Nuit des Médias, Paris Prix de la création for mobile video art, Festival Mobile Days, Paris)

2.3.2 Soi Moi - Team

general concept & choreography Nicole Corsino Norbert Corsino
interactivity development Samuel Toulouse
3D scenographic design Patrick Zanoli
performance for motion capture Ana Teixido, Stefania Rossetti, Norbert Corsino
sound design Jacques Diennet
text: Claudine Galéa
Production Credits - Danse 34, Productions; [ars]numerica, European centre for digital arts, with the support of CNC New Medias. Available from App Store

2.3.3 press extracts – *Soi Moi*

see the following attached printed articles, available at http://www.nncorsino.com/en/presse [accessed 10 August 2014]

"La première oeuvre d'art sur Iphone" - Rsr.fr, Anonym, July 2009
"Faire danser une silhouette sur son iPhone grâce à l'application soi moi". Le Monde, Rosita Boisseau, August 2009
"Une danseuse dans son Iphone", Libération, Marie Christine Vernay, December 2009
"La danse à l'ère de la téléphonie mobile". Paris Art, Nicolas Villodre, December 2009
"Les Corsino dansent sur l'Iphone", La Provence, Marie-Eve Barbier, Mars 2010

2.4 Other projects: Captives, Seule Avec Loupe, Bangalore Fictions

In http://www.nncorsino.com/en/creations [accessed 10 August 2014]

2.4.1 Captives (2nd Movement) (1999-2000)

The scenario of *Captives* is built around movements of women driven by behaviour of refusal. The actions and the imagination that result from this attitude are the material of this short fantasy tale. The movements of the bodies of female dancers (Nicole Corsino, Ana Teixido, Carme Vidal), recorded in motion capture, is applied to their clone. As in an animation film, bodies and spaces undergo all kinds of deformations, and dance is plunged into a world of reflections. With a concave screen, virtual mist and forest, beaches of giant crystals, a futuristic city made up of screens, the scenographic design proposes dissociated worlds, explored by the camera's virtual movements. Special effects create a completely strange climate. (by Irène Filiberti *Images de la culture*, C.N.C.).
Prix de la création at the Dance Screen Festival (2000, Monaco). *Prix Pixel Ina* at the Imagina Festival (2000, Monaco). *Mention Spéciale* Ars Electronica (2000, Linz). *Mention Spéciale il coreografo elettronice*, (2000, Naples).

2.4.2 Seule Avec Loupe

Premiered at the Centre Pompidou as part of the Agora festival, IRCAM (from 1 to 26 June 2006) *Pluies Imamuriennes* and soaring flights of winged words, Little Red Riding Hood in a forest of weeds, running through a deserted landscape, an identical loss of bearings and exchange of identities for

Antonionesque reunions, drag artist solos and glamorous duos, devouring and rewriteable loves, the *Seule avec loup* [Alone with Wolf] *storia* crosses genders, transfers data and knowledge, conveys passengers, dissects interpretations, generates an audiovisual novel in which everyone is led, one by the other, both together, one in the other.
N+N Corsino add a unique adventure. The new technological tools of virtual reality and 3D scenographic design open up extraordinary fields of transformation and interpretation. Visited by the creative imagination of two choreographers in love with fictions, the narrations of this interactive visual, textual and sound navigation transport us in real time in shifts and digressions of all the senses.
Alone with Wolf?? Where are we, in what time?? Am I me, or am I you?? And what if we did not come out of the belly of the wolf, nor from any belly?? And what if the city is forest?? And what if mascunine is femiline?? Do we play at being?? Are we what we play?? (Claudine Galéa, *Morphoses*)
Morphoses, a graphic novel, with text by Claudine Galéa and illustrations by Goele Dewanckel (published by Editions du Rouergue), goes along with N+N Corsino's 3D interactive navigation *Seule avec loup [Alone with Wolf]*.I

2.4.3 Bangalore Fictions

This project is produced in India and in France. It develops cultural exchanges with Indian partners – artists, performers, technicians, galleries, art centres and dance companies – and shares technological know-how. Gestures and body movements, music, text and calligraphy are linked together in interactive writing that highlights each of these elements. Following the principle of a graphic novel, text and images fuse together in a hybrid form in a narrative process and generate imaginary body movements.
A series of 12 fictions plays on these notions and becomes the basis of the choreographic *motif*. In its artistic process, this work incorporates the development of technological tools and resources specific to digital tablets.
Bangalore fictions will be presented as an installation as part of the *Bonjour India* Festival : New Delhi (National Gallery for Modern Art) and Bangalore (SKE Gallery) in March 2013, and it will be created on the international level by means of an application for digital tablet in October 2013 .

press article available at http://www.nncorsino.com/en/presse [accessed 10 August 2014] is attached in this thesis with the group of press articles from Soi Moi.

2.5 Publications, articles and catalogues with texts for or bout n+n corsino

In http://www.nncorsino.com/en/creations [accessed 16 August 2014]

2.5.1 Publications and articles by n + n Corsino:

Ma vache s'affole, mon mouton tremble et mon maïs mute, (Corps/Machines/ Territoires) Actes du colloque, Marseille Théâtre des Bernardines, 1999
De la différence des arts, colloque IRCAM., éd. L' Harmattan, 1998
Du corps au corpus technologique, éd. Odyssud, 1997 (actes du colloque)
Vitesse et mémoire, revue Nouvelles de danse, éd.Contredanse, 1996
Filmer la danse, revue Nouvelles de danse, éd.Contredanse, hiver 1996
Lecture de l'image, Marsyas n°34, revue de l' i.p.m.c. , 1995
Art/ Cognition : pratiques artistiques et sciences cognitives, CYPRES, 1994
Symposium sur la video française, éd.Videofest Berlin, 1993
& la danse, Revue d'esthétique, éd. J.M.Place, 22/1992

2.5.2 Publications and articles on n + n Corsino:

n + n Corsino, Surf et Surface navigations chorégraphiques, textes Claudine Galea, Nicolas Villodre, Yves Zoberman,
catalogue exposition, ed. CDA Enghien-les-Bains 2012
Seule avec loup, textes Claudine Galea, catalogue exposition éd. Festival de Marseille 2007
Morphoses, textes Claudine Galea, images et mise en page Goele Dewanckel, éd. du Rouergue 2006
Topologies of the instant, catalogue exposition ed. Choussev Museum, Moscou 2004; ed. Hong Kong Museum of Art 2004; ed. Shanghai Museum of Art 2002
Topologies de l'instant, textes de Claudine Galea, Daniel Dobbels, Pierre Bongiovanni, éd. Actes sud 2001
Sally Jane Norman, Bernard Stiegler, éd.Actes sud, 1996

Traversées, textes de Patrick Amine, Louis Bec, Daniel Dobbels, Dominique Dupuy, Jean-Paul Fargier, Claudine Galea, Norbert Hillaire, Marc Mercier,
Publication de la cinémathèque de la danse, Palais de Chaillot, 1996
Chronique d'une navigation, de Claudine Galea, éd. Images en manoeuvre, 1996
Turbulences video, revue festival Videoformes, n°9, 1995
Publication de la cinémathèque de la danse, Palais de Tokyo, 1992

2.5.3 General publications and catalogues that include works by n + n Corsino:

Dits, «Epopées en 3d + fictions chorégraphiques mobiles» patrick Amine, ed. du Musée des Arts Contemporains, MACS'S Grand Hornu, 2011
Danse et art contemporain, Rosita Boisseau, Christian Gattinoni, ed. Nouvelles éditions Scala, 2011
Arts et nouvelles technologies, sous la direction de Jean-Marc Lachaud et Olivier Lussac, ed. de L'Harmattan, 2007
MatriXS, The 4th Seoul International Media Art Biennale, ed. Seoul Museum of Art, 200
Panorama de la danse contemporaine, 90 chorégraphes, Rosita Boisseau, éd. Textuel, 2006
Artwise Contemporary, Ed John Wiley & Sons Australia 2005
Almanach, 30 ans de révolution Culturelle, Libération, 2004
Revue Descartes, éd. Collège International de Philosophie, 2004
Mode textile Vêtement, Journal des Arts Déco N°22, 2003
L'art Numérique, Edmond Couchot, Norbert Hillaire, Flammarion, 2003
Arts et Nouvelles Technologies, Florence de Mèredieu, Larousse, 2003
le Bâti / le Vivant, éd. Stiwer & Difelice, Café Crème, 2002
La scena digitale (nuovi media per la danza), éd. Marsilio, 2002
Cyberarts 2000, Springer, 2001
Revue ÈcartS, #1, Textualités et nouvellles technologies, 2000
La Beauté, catalogue de l'exposition, Flammarion, 2000
Dictionnaire de la danse, Flammarion, 1999
Danse et nouvelles technologies, Cité de la Musique, Paris, 1998
La technologie dans l'art, Edmont Couchot, éd. J. Chambon, 1998
L'image numérique, l'aventure du regard, ouvrage collectif, éd. PUF Rennes, 1998
La musa dello schermo freddo, d' Elisa Vaccarino, éd. Coste e Nolan, 1997
Le film de théâtre, éd. c.n.r.s., 1997
Le forme dello sguardo, In video, Milan, éd. Charta, 1997
Chronique d'une navigation, Claudine Galea, éd. Images en Manoeuvre, 1996
Réels, fictions, virtuel, rencontres internationales de la photographie, éd. Actes Sud, 1996
Images de danse, catalogue « images de la culture », éd. c.n.c.
Videokunstpreis, éd. Zentrum Für Kunst und Medientechnologie, Karlsruhe, 1995
Imagina 95, catalogue Institut National de l'Audiovisuel

3 Section 3 – collection of press articles n+n corsino

La première œuvre d'art sur iPhone

Art et technologie, un mariage utile ? Nicole et Norbert Corsino (N N) sont chorégraphes et chercheurs. Ils ont exploré les possibilités offertes par l'iPhone pour diffuser leur travail sur la danse.

Nicole et Norbert Corsino (N N) sont chorégraphes et chercheurs. Intéressés par la cinétique des corps et des paysages, ils explorent les territoires où la danse peut surgir et s'écrire afin de donner à voir comment le mouvement des corps le modifie. ils changent d'espace de représentation pour la danse en montrant leurs fictions chorégraphiques sous la forme de films et d'installations.

Cette navigation téléchargeable, mais payante, a demandé plus d'un an de travail avec des spécialistes et des ingénieurs. Il s'agit d'un spectacle interactif où une danseuse virtuelle évolue dans un décor que l'utilisateur peut modifier en utilisant les différents senseurs de son appareil. Par exemple, vous soufflez sur l'écran et des bulles de savon apparaissent, ou vous secouez et ce sont des flocons de neige qui s'agitent. La création devient alors propre à chaque utilisateur.

Cette "œuvre" se compose de 9 chorégraphies d'une durée d'une minute chacune. Le projet a reçu le soutien du département nouveaux médias du Centre national du cinéma (CNC).

Responsable marketing chez Centre Doc à Neuchâtel, **David Borel est l'invité du 12h30** qui lance la discussion sur cette thématique du mariage de l'art et de la technologie.

Le Monde

Dimanche 9 - Lundi 10 août 2009

Faire danser une silhouette sur son iPhone grâce à l'application « Soi moi »

Ils n'en sont pas peu fiers. Les chorégraphes Nicole et Norbert Corsino (N+N) présentent leur nouveau bébé baptisé « Soi moi ». Cette application pour iPhone est téléchargeable, depuis jeudi 6 août, sur AppStore, le magasin virtuel pour le téléphone d'Apple. Elle comporte une quinzaine de séquences chorégraphiques, visuellement très élégantes, d'une durée d'une à deux minutes chacune. Son prix : 7,99 euros. Ce projet a reçu le soutien du département nouveaux médias du Centre national du cinéma (CNC). Pas peu fiers, les Corsino, d'être les seuls à remporter la mise (50 000 euros) pour cette *« première œuvre d'art sur iPhone »*, dixit Norbert Corsino.

Que ces défricheurs de nouveaux espaces de représentation pour la danse aient réussi à investir le format du téléphone portable est un exploit dans l'air du temps. *« Tout est dans la main,* résume Norbert Corsino. *On peut utiliser presque tous les systèmes de l'iPhone pour interagir sur les images, tout en restant dans la poésie. »* Le résultat, sophistiqué, met en scène la silhouette ondulante d'une femme glissant sur fond de décor mouvant et coloré. Reconnaissable immédiatement, la gestuelle de cette nouvelle héroïne a été clonée sur celle d'une danseuse équipée de capteurs. Les plus de l'iPhone résident dans ses manipulations et son fameux écran tactile. Ces mini-films peuvent être trafiqués en direct, enjolivés, rythmés... *« "Soi moi" donne une perception de son propre corps plus amicale en quelque sorte »*, poursuit Nicole Corsino.

Antennes charnelles

Cette navigation sur iPhone a exigé plus d'un an de travail avec des spécialistes et ingénieurs, dont le programmeur Samuel Toulouse et le scénographe 3D Patrick Zanoli. Trois mois de recherches préalables se sont déroulés en studio avec les danseuses Stefania Rossetti et Ana Teixido.

Comment ça marche ? N+N dégainent chacun leur prothèse téléphonique et font une démonstration à tour de rôle. On peut renverser le mobile et faire tomber des flocons sur l'image à la façon d'une boule de neige à l'ancienne, souffler sur l'écran et lever une tempête de bulles. C'est ludique et superbe. Mais encore... interagir avec l'accéléromètre, Internet, le GPS, prendre des photos et les glisser en fond d'écran des films, basculer le décor d'une caresse du doigt... Cette création, propre à chaque utilisateur, joue à équidistance entre manipulation d'objet et interactivité. Les antennes charnelles et la magie virtuelle se conjuguent. Avec « Soi moi », les Corsino marquent un point en décalant artistiquement les postures actuelles liées, entre autres, à la téléphonie.

Apparus au tournant des années 1980, ces chorégraphes n'ont eu de cesse de déplacer leur point de mire du plateau vers l'écran, tous les écrans. Du cinéma avec *Anna de la côte* (1986) aux immenses placards publicitaires pixellisés des immeubles de Séoul (2008), le couple dégage de nouveaux sites pour la danse, découpe son cadre d'action. *« La danse, c'est une déformation continue de l'espace, et c'est ce que nous continuons à faire sur des outils comme l'iPhone »*, glisse Norbert Corsino, qui aime parler de *« topologie portative »* en évoquant « Soi moi ». Plus que jamais chorégraphes. Et pas peu fiers.

Rosita Boisseau

Libération
SAMEDI 26 ET DIMANCHE 27 DECEMBRE 2009 N°8903

DANSE . Les chorégraphes Nicole et Norbert Corsino signent leur dernière création pour Apple.

N+N, une danseuse dans son iPhone

Ce sont les N+N, de Marseille (pour Nicole et Norbert Corsino), deux amours de chorégraphes qui ont pris les chemins buissonniers. En 1981, ils fondent, comme beaucoup d'autres, une compagnie. Mais, très vite, les voilà démangés par l'envie d'aller voir ailleurs s'ils y sont, tout en conservant leur base, c'est-à-dire la danse et la chorégraphie.

Ils quittent la scène traditionnelle et se mettent à explorer le territoire peu fréquenté du multimédia et du numérique. On ne fait alors guère cas de ces deux explorateurs qui, peu à peu, trouvent des soutiens en France et bien sûr à l'étranger.

Calme. Installations, scénographie en 3D, interactivité du spectateur sur l'image... N+N ne se privent d'aucun support à leur développement poétique, à la construction de paysages mentaux qui mettent en perspective leur propre vision des autoroutes de l'information et de l'image.

Si, dans leurs pièces, ils savent succomber aux charmes des grandes métropoles et de leurs lumières, ils connaissent aussi les recoins où respirer, s'assoupir ou flâner. Pour ce faire, ils ont «cloné» des danseurs. Les vrais sont toujours dans la compagnie comme Stefania Rossetti, Ana Teixido ou Norbert Corsino et ce sont eux qui mènent la danse – une singularité dans un monde où le tout virtuel a de plus en plus tendance à dominer.

Si l'on secoue son iPhone, la neige tombe. Si on souffle, dans le micro, le brouillard s'estompe et la danseuse paraît.

Les charmantes interprètes d'N+N possèdent une danse déliée et calme, bien que pleine d'accents toniques, et ne succombent pas aux effets de mode. Les chorégraphes ont trouvé un nouveau support et ils signent une nouvelle création, *Soi moi* (1), pour iPhone, produite par Danse 34 Productions (Ars)numerica, avec le soutien du Centre national de la cinématographie.

Regrettant d'être répertoriés au rayon «divertissements» et non «art», ils ont mis au point de courtes séquences chorégraphiques où chaque fois leur clone se trouve mise en scène dans un décor ou une situation unique.

Escalier. L'utilisateur peut accéder à l'application moyennant 7,50 euros, ce qui lui garantit toute liberté pour intervenir sur le décor et le temps. Seule la chorégraphie est immuable dans ses propres variations. On entre en intimité avec le clone pour des jeux particuliers. Si l'on secoue son iPhone, la neige se met à tomber. Si l'on souffle dans le micro, le brouillard s'estompe et la danseuse paraît. Si l'on retourne l'engin, on peut inverser le sens d'une marche ou d'un escalier. On peut aussi changer complètement le cadre. Il suffit de prendre une photo et de la substituer à l'original, pour que la danseuse se retrouve chez vous, dans votre rue ou sur le portrait de vos amis. Très chic et tout aussi tendre.

MARIE-CHRISTINE VERNAY

(1) Diffusé sur Apple Store.

ECHOS

La danse à l'ère de la téléphonie mobile

07 déc. 2009

Les chorégraphes vidéastes Nicole et Norbert Corsino (N+N) explorent un nouveau support, faute pour le moment d'exploiter un nouveau filon, celui des logiciels informatiques destinés à la téléphonie mobile, autrement dit celui des iPhone apps, avec leur divertissement numérique intitulé Soi Moi.

Par Nicolas Villodre

Nicole et Norbert Corsino sont des danseurs et chorégraphes marseillais, des pionniers en France, avec quelques autres (Robert Cahen, Alain Longuet, Luc Riolon, Charles Picq) de ce qu'on a appelé, au début des années 80, la vidéo-danse. Après avoir bien calculé leur coup, sans doute lu les textes et probablement vu les films de Germaine Dulac, Laszlo Moholy-Nagy, Maya Deren, ils ont lutté contre la tentation cabotine constitutive de l'ego du danseur et ont décidé d'abandonner la scène théâtrale pour se concentrer sur celle du petit écran.

Comme si le fait de produire des vidéos d'art et d'en vivre ne leur suffisait pas, ils ont pris le TGV du virtuel et de tout ce qui s'en suit (capture du mouvement, logiciel canadien Life Forms, installations 3D, etc.).

À un certain moment (celui de leurs opus Totempol et Captives), leur danseuse réelle a muté et a pris le corps flouté d'un avatar à la Lara Croft. Il est vrai que nous sommes passés alors, mine de rien, d'un monde de clowns à un univers de clones.

Si la gestuelle minimaliste de leur danse n'a pas été touchée par ce bouleversement technique, la qualité formelle des vidéos a été profondément atteinte. Les Corsino ont délaissé un impressionnisme de bon ton, leurs magnifiques paysages arrachés aux quatre coins du globe, filtrés par l'électronique, les effets cinétiques, les gadgets analogiques et numériques. Les corps aux mouvements retenus, jusque-là distribués dans des décors fantasques, se sont retrouvés dans la zone désertique, infinie, de l'épure la plus absolue. Retour au noir et blanc des pionniers. Aux cristallisations. La danseuse est devenue par la même occasion un top model idéal, idéel, modelé, modélisé.

Par une alchimie de l'histoire, le hardware s'est métamorphosé en software, la matière noire a viré au gris. La seule chose palpable dans ce nouveau monde dématérialisé, dévalué, est l'argent. Le flux de l'or noir, la danse du dollar, du yen et du yuan. L'économie, la finance, l'informatique ont produit ces changements dans l'art en général et dans la vidéo en particulier. iTunes rapporte plus que tout autre appareillage électronique. Le téléchargement est à sens unique puisqu'il vide surtout nos comptes en banque.

Parmi les 100.000 « applications » chimériques et autres miroirs aux alouettes actuellement disponibles, il en est quelques unes dignes d'intérêt. C'est le cas de Soi Moi, une œuvre d'art qui vaut sa poignée d'euros.

Le rapport à l'image a évolué et on assiste à un retour de la miniature. L'œil, en tout cas celui des adolescents se contentant de vignettes tandis que les vieux croûtons que nous sommes en sont à réclamer leur cinémascope d'antan, s'est aiguisé. Il va finir par transpercer la paume du possesseur de « smartphone » comme un laser et laisser une crevasse d'où sortiront les fourmis de nos rêves.

Le programme ludique des Corsino est à base de séquences qui présentent les mouvements fluides produits grâce aux collaborations artistiques de toujours (les danseuses Ana Teixido et Stefania Rossetti, le compositeur Jacques Diennet, l'infographiste Patrick Zanoli) et des effets psycho-sensoriels obtenus par un long travail de programmation de la part du développeur Samuel Toulouse.

On ne parle plus de nos jours de participation du spectateur, de feedback, d'interactivité mais de navigation intuitive. Le spectateur-acteur, le manipulateur-joueur peut faire ses gammes à l'infini, changer de fond d'écran, de fond musical, de tempo, déformer l'image en temps réel...
Les frappes du clavier sont maintenant des frôlements écraniques, les ordres, des caresses. Et souffler peut être jouer.

La Provence
VENDREDI 19 MARS 2010

Les Corsino dansent sur l'iPhone

Le couple de chorégraphes marseillais a inventé "Soi Moi", la première œuvre d'art conçue pour téléphone mobile

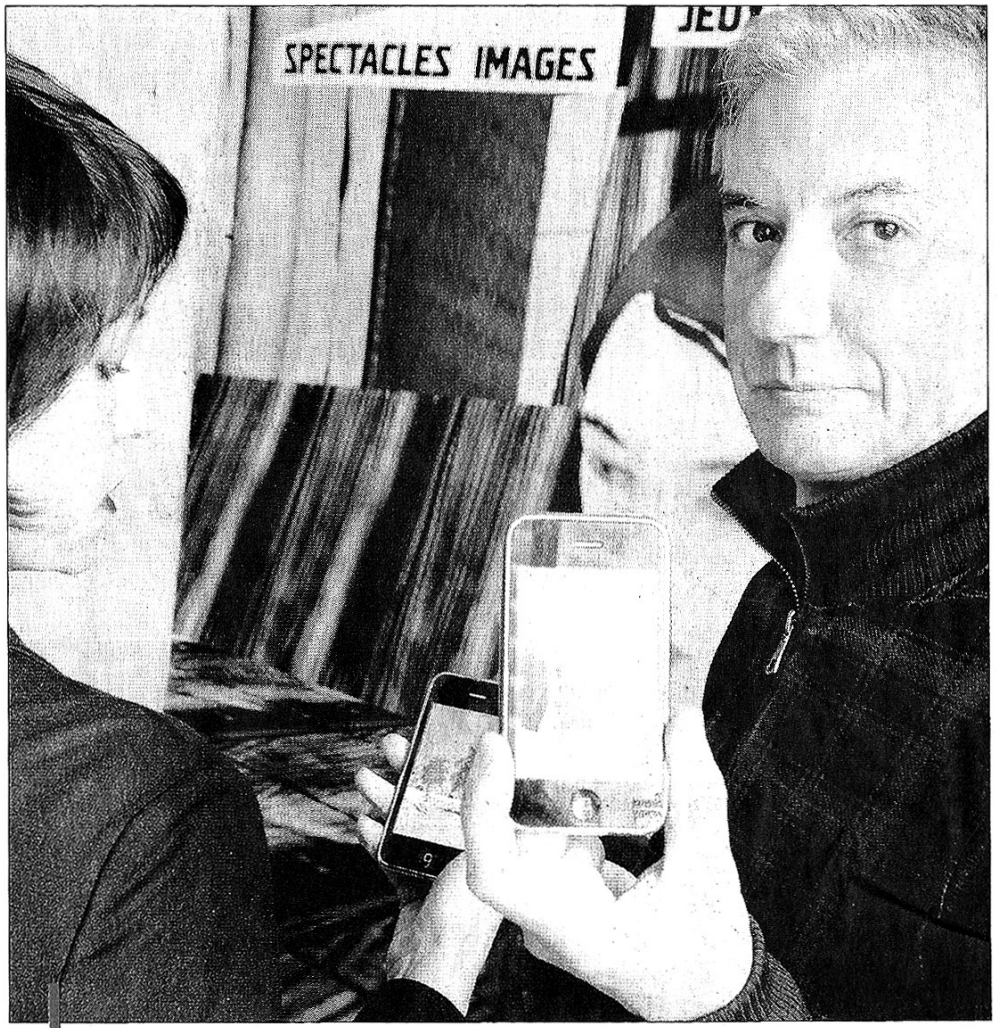
Adeptes depuis longtemps des images 3D et du numérique, Nicole et Norbert Corsino (N+N Corsino) sont toujours à la recherche de nouveaux terrains de jeux. C'est donc assez naturellement qu'ils ont créé "Soi Moi", une nouvelle application pour iPhone, aux vertus hypnotiques : à l'écran, une fine danseuse au look manga virevolte dans des paysages vertigineux ou zen, déserts, calligraphies, arbres du Japon. On peut l'attraper par le torse en effleurant l'écran et la faire tournoyer, lui envoyer la musique de son choix sur iPod sur laquelle elle improvise, souffler sur l'écran pour envoyer des bulles ou provoquer un raz-de-marée sur son passage.

Et même la filmer en vidéo. "*Soi Moi utilise toutes les fonctions de l'iPhone, la photo, la vidéo, le son*, explique Norbert Corsino. *On aime utiliser des technologies pointues tout en revenant aux fondamentaux de l'enfance : souffler ou secouer l'appareil comme une boule à neige.*"

Le développement de "Soi Moi", petit bijou technologique et poétique, a pris plus d'un an. La chorégraphie a été créée et répétée à Marseille avec deux danseuses, Ana Teixido et Stefania Rosseto. La captation de mouvement ("motion capture") enregistrée dans des studios d'animation parisiens. Et c'est un fidèle complice, le programmateur Samuel Toulouse - créateur, entre autres, du jeu "Harry Potter et la coupe de feu" - qui a ensuite créé l'application iPhone. Restait à faire valider le projet par Apple, qui a labélisé son niveau technologique et son contenu. L'application est désormais disponible au prix de 7,99 euros sur Applestore, aux côtés de jeux vidéo, journaux en ligne, GPS, etc. "*Soi Moi ne sert à rien, si ce n'est à se faire plaisir et à passer du temps !*, s'exclame Nicole Corsino. *Elle est moins chère qu'un CD ou une place de cinéma. Et c'est une œuvre d'art pour la vie.*"

Toujours pionniers, les Corsino sont parmi les premiers artistes à s'emparer de l'iPhone. Danseurs à l'origine, le couple travaille depuis près de vingt ans sur les images de synthèse et expose des installations composées d'écrans géants à Marseille, Paris, Singapour ou Shangaï. "*Cela fait longtemps qu'on préfère l'image à la scène. Elle permet de larguer les amarres !*", sourit Nicole. "*Mais ce qui fait la qualité de Soi Moi, c'est qu'elle part du vivant, du corps*", ajoute Norbert, en rappelant que les films d'animation de haut niveau comme *Avatar* mixent animation et captation de mouvement. Les chorégraphes ont d'ailleurs deux autres projets qui s'appuient sur la téléphonie mobile pour Marseille 2013, capitale européenne de la culture.

On peut secouer le portable comme une boule à neige. On est restés des enfants !



Nicole et Norbert Corsino sont danseurs et chercheurs. Leurs pièces sont interprétées par de vrais danseurs, puis traduites en images de synthèse dans un studio d'animation. / PHOTO CYRIL SOLLIER

Un autre projet basé sur les mobiles est prévu pour Marseille capitale de la culture.

Ils rêvent d'installer un grand écran sur le fort Saint Nicolas, qui sera mis à disposition d'artistes de toute la Méditerranée, et du public à certaines plages horaires. "*Un quidam installé à la terrasse de l'OM Café pourrait envoyer 'Marie je t aime' par SMS*", s'amuse Norbert. Quant à "Soi Moi", elle connaîtra une seconde vie. Ses créateurs la déclinent en effet en installation, composée d'écrans verticaux, exposée le 16 mars à Casablanca, et en octobre à Singapour.

Muni de son iPhone, transformé en télécommande grâce à la wi-fi, le spectateur s'y baladera et pourra déclencher sur l'écran un mouvement, ou une tempête de neige en plein Sahara.

Marie-Eve BARBIER

L'application "Soi Moi" est disponible sur Apple store au prix de 7,99 euros. Elle fait appel aux différentes fonctions de l'iPhone, photo, vidéo, son, selon les séquences. On peut y intégrer ses photos en fond d'écran ou les musiques de son iPod. Voir la démo en ligne, www.youtube.com/nncorsino

Le Monde

Mardi 14 février 2012 - 68e année - N°20860

N + N Corsino dansent avec les pixels

Vingt ans de recherche chorégraphique, entre scène et écrans, célébrés à Enghien-les-Bains

Le titre de la nouvelle exposition des chorégraphes N + N Corsino (Nicole et Norbert) *Surf et Surface,* à l'affiche du Centre des arts numériques d'Enghien-les-Bains, donne un avant-goût de la gymnastique oculaire offerte par leurs images choré-numériques. Surfer sur la surface, glisser sur les écrans, caresser les peaux électroniques apaise les rétines explosées et procure un curieux délassement.

Pour la première fois de leur parcours, cette paire d'artistes, tiraillée entre plateaux et écrans, concret et virtuel, tend un arc sur vingt ans de recherche. Cinq installations, composées d'écrans de formats variés.

Traversées (1996) met le visiteur dans le bain. Incrustés dans un mur incurvé, une douzaine de mini-écrans sont disposés selon des lignes parallèles. Sur chacun, des paysages et des personnages, souvent fragmentés. Est-ce le changement rapide des couleurs – du jaune au bleu acier –, le télescopage des plans extrêmement variés, qui perturbent la vision ? Un tangage visuel se propage. Pour peu que l'on s'éloigne et se rapproche de la paroi, la sensation de jouer au Yo-Yo augmente. Le mystère s'éclaire : le vertige résulte aussi des déplacements décalés et à peine visibles de chaque petit écran sur ses rails.

Avec *Surf et Surface,* Nicole et Norbert Corsino affirment l'une de leurs obsessions : travailler sur l'imperceptible, l'infime. Glissements millimétrés des corps dans l'image, ralentis extrêmes des mouvements, ces coups de frein numériques suspendent la danse en déshumanisant partiellement son interprète. L'artificielle lenteur d'une chute qui n'en finit pas fait la beauté intrigante de l'installation intitulée *Mues.* Sur l'un des six écrans verticaux, une femme nue – mais s'agit-il encore tout à fait d'une femme, tant sa silhouette blanche est lisse ? – coule tête en bas le long d'un fond gris.

Corps rêvés

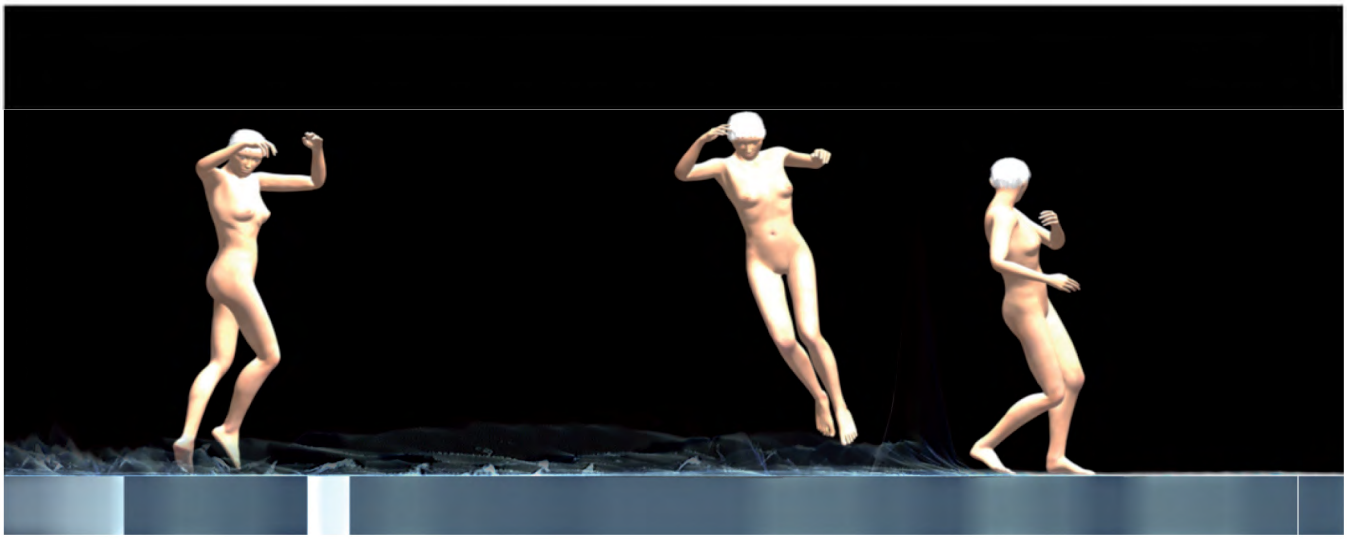
L'apesanteur règne dans le monde numérique de N + N Corsino. Leur désir d'un ailleurs est trop puissant pour que nos deux aventuriers résistent à l'appel de la virtualité. A la réalité imparfaite, ils préfèrent un monde irréel, intemporel, vision évanescente souvent surexposée ou irradiée de couleurs insolites. Dans ces décors, des créatures clonées d'après le corps de danseuses évoluent lentement. Corps rêvés que seuls les logiciels peuvent offrir.

En conjuguant leurs forces contraires, N + N Corsino, qui se revendiquent d'abord et avant tout chorégraphes, ouvrent des espaces déraisonnables à la danse. Car c'est toujours de là que tout part : chacune de leurs installations naît d'une séquence chorégraphiée et dansée live, filmée sous tous les angles.

Leur application pour iPhone *Soi moi* (2009) s'offre enfin ici une exposition XXL. Projetées sur grand écran, les douze séquences de cette balade peuvent être transformées à distance par le visiteur grâce à un iPhone mis à disposition. Souffler une brise réconfortante ou déclencher une tempête de bulles sur l'héroïne en train de courir active l'imaginaire d'un simple coup de pouce. ■

ROSITA BOISSEAU

Surf et Surface, de N + N Corsino. Centre des arts - Ecritures numériques, 12-16, rue de la Libération, Enghien-les-Bains (95). Du mardi au dimanche. Tél. : 01-30-10-85-59. Entrée libre.



Libération

LIBÉRATION **MARDI** 24 DÉCEMBRE 2013

DANSE Consultable sur iPad, le roman graphique du duo marseillais plonge dans l'Inde contemporaine.

Les Corsino, virtuoses du virtuel

De Marseille, naviguer en Inde à la Friche Belle de Mai, avec vue directe sur les trains, mais encore sans passerelle pour pouvoir se rendre à la gare Saint-Charles, les chorégraphes et toujours chercheurs depuis les années 90, Nicole et Norbert Corsino (N+N Corsino) sont enfin dans leurs murs, loués à un prix très raisonnable par la ville de Marseille.

Dans le pôle média de la Friche joliment rénovée, ils viennent d'ouvrir la Scène 44, un espace neutre, fonctionnel, qui permet les circulations. Espace de recherche et de travail de 600 m² qui peut s'ouvrir au public pour des installations, d'une hauteur de 6 mètres, riche d'un dispositif pour la qualité sonore, la Scène 44, avec sa mini-cuisine pour les 6 groupes de chercheurs qui devraient y trouver successivement résidence, résume à elle seule le parcours des Corsino. De leur port d'attache, ils feront régulièrement des allers-retours pour mettre au point de nouvelles chorégraphies, hors de la scène traditionnelle, se tournant rapidement vers le virtuel encore inexploré.

Mezzanine. A l'époque, ils ramèrent dur pour transformer les Lara Croft en danseuses raffinées. Aujourd'hui experts du virtuel et du numérique, après avoir travaillé auprès d'autres chercheurs en France et à l'étranger (ils seront directeurs artistiques de Ars Numerica de 2007 à 2009), ils proposent des fictions sous forme de films, d'installations, et maintenant d'applications.

Dans ce nouveau lieu où une mezzanine attend les artistes invités, ils ont présenté en octobre *Bangalore Fictions*, à l'issue du symposium international Computer Music Multidisciplinary Research. Sur le thème «Music and motion». Bien qu'ils créent pour de nouveaux supports, ils conservent leur relation privilégiée au corps en mouvement, à la danse.

Pour leur dernière pièce, concoctée en Inde, dans le magnifique lieu qu'est le Darpana Center for Performing Arts de Ahmedabad, ils ont choisi deux danseurs indiens d'une vingtaine d'années : Revanta Sarabhai et Pooja Purohit. Ils leur ont adjoint une écrivaine, Anjum Hasan, qui signe les textes traduits en plusieurs langues dont le hindi et le gujarati à l'écriture très ronde, un jeune bédéiste, Tudu Saheb Ram, un calligraphe, Amit Kharsani, et des musiciens. Il aura fallu deux ans pour que ce roman graphique et musical sorte enfin. Il est mis en ligne sur App Store en application téléchargeable créée pour la tablette numérique iPad, au prix de 1,79 euro.

Le lecteur intervient sur sa tablette, au hasard, en tournant les pages des fictions de ce livre animé.

Le voyage ne coûte pas cher qui donne une image plus que dynamique de l'Inde contemporaine, avec ses couleurs captées par les artistes, ses rues picturales, ses écritures. Les danseurs s'y promènent comme dans un écrin, tantôt captés, tantôt clonés. Ils deviennent même des lettres en mouvement. Et le lecteur utilisateur est invité à participer en intervenant sur sa tablette, au hasard, en tournant les pages des douze fictions qui constituent ce livre animé et interactif grâce à un développement logiciel inédit mis en œuvre par Samuel Toulouse.

***Bangalore fictions*, application créée pour iPad.** N+N CORSINO

Amarre. Que les Corsino retrouvent leur port d'attache à Marseille – dont l'ardeur culturelle insoupçonnée s'est enfin révélée, du Mucem à la Scène 44 –, est plus que légitime. C'est de cette amarre qu'ils invitent à prendre le large pour la ville de Bangalore, sous une pluie d'eau ou de fleurs. Car, avec cette application, on peut cultiver son propre jardin.

MARIE-CHRISTINE VERNAY

Scène 44, Friche Belle de Mai, pôle média, Marseille (13). «Bangalore Fictions», sur tablette numérique iPad, 1,79 €.

Dance Performance in Cyberspace
(transfer and transformation)

Paula Varanda

Appendix 3

Joseph Hyde / *Me and My Shadow*

Section 1 - interviews with the artist Joseph Hyde and the dramaturge Ghislaine Boddington, August 2013

Section 2 - summary of information displayed in the website and process blog

Section 3 - collection of press articles

The materials regarding this case study and compiled in this appendix are of two different sources: the first is Joseph Hyde as the artist that created *Me and My Shadow (M&MS)*, directing a collaborative project in response to a call from network MADE; the second is the creative design collective Body>Data>Space, represented by its director Ghislaine Boddington, who collaborated on the dramaturgy of Me and My Shadow and had commissioned Hyde before to participate in telepresence projects. Embodied and movement led telepresence has been a keyword driving Boddington's work which in turn is related with Hyde's engagement with enquiry in this domain and his collaboration with dancers to do so. While Hyde's interview and selection of online materials are connected with his role as proponent of the project, Boddington's contribution provides an overview on the subject of telepresence and in what ways *Me and My Shadow* is informed by and fits in her long term research on the subject with Body>Data>Space (BDS).

1 Section 1 - interview transcripts with Joseph Hyde and Ghislaine Boddington

1.1 Joseph Hyde, artist / interview transcript

This interview was done on the 14th of August 2013. I met Joseph Hyde in a hotel lounge in Paddington, while he was travelling between working sites. We had talked before on site about the project, in June 2012, when *Me and My Shadow* was displayed at the National Theatre. In this interview we went through more detailed aspects of the work, namely by addressing issues that were transversal questions aligned to analyze the different case studies of this research.

The interview was conducted as a semi structured informal conversation, of approximately one hour. After localizing this work in relation to antecedent experiences by the author on telepresence and interactivity, we engaged in a discussion about the elements of the work and technological specificities, the way content was generated and the resulting effects and transactions, as well as terminology and categorization.

1.1.1 Antecedents on telepresence and interactivity

When I started this work thought of it as a completely new thing and didn't connect it to any of my previous work. But in fact *Me and My Shadow* combines two different strands of earlier projects. One is the telepresence work, which I had explored around 2001 with the *Cell Bytes Project* also run by Ghislaine Boddington; that was a very straight forward model of video telepresence: a video channel linking two places, through cables. The other area is interactivity; I did a couple of pieces using interactive video as a means of memory (the memory you can store with digital technology). In particular I did this installation called *Periphery*, in 2000, which was really a public art piece.

Periphery was a bit like *Me and My Shadow* because it was not for a specialist audience but for regular people, displayed in the middle of Bristol in a public place where people used to gather. The idea was very simple: a hall of mirrors, that give the sense of an infinite space. But the mirrors had a memory, so you would see the reflections from the past. To do so, together with the mirrors I installed video cameras that would record what was happening and video projectors that would reflect those recordings back, two weeks later. I did not see that connection at the start, but of course this idea is very connected with what I did in *Me and My Shadow*: the idea that we could have the traces of the past mixed with our real presence in the present.

After those two projects in 2000 and 2001, as well as a music project for BBC in 2002 (with three parts of the orchestra spread out in different parts of the UK), I got really bored with that sort of display model and decided I was not interested in telepresence anymore.

What I don't like in telepresence, in the old model, is that the relationship with the other person is fixed, and it has become everyday life. I use Skype everyday to talk with my kids and that is really telepresence. Ghislaine Boddington always makes a point that her research is directed towards full body engagement telepresence. I agree with her that it is different from head focused telepresence, but to some extent it is still within the everyday in the sense that it is not so difficult to do, you just have to step further away from the camera. On the contrary, M&MS and other projects seem to be bringing something new. So this project was a development of those others that I have mentioned, but adding the motion capture and the kinect to that appeared to add a whole new thing.

1.1.2 Body and movement

The body representation was a mixture of necessity and choice. It had to be a little abstracted because the technology is not good enough to make a perfect body representation. I chose to have an abstract surface of the body – using therefore a transparent colored figure - because otherwise it would be very difficult to have a good movement representation. Some people are doing that: creating moving bodies in fully synthetic representations, with surfaces and many details - but you almost certainly get into that Uncanny Valley effect; I think it looks really horrible because it is distorted in a disturbing sort of way.

On the other hand I also felt the abstraction was appealing; what I found interesting is that it is not as abstracted as you would expect; you can recognize people. When I was in Paris and Geraldine or Natalie (two collaborators as dancers and invigilators) were in London, I could definitely tell them from other people just because of the way they moved. I could identify them by the way they moved and this could be an interesting subject to analyze in the project, which is how much do we recognize people from their way of moving? Everyone has a slightly different way of walking or moving and that comes out with motion capture.

In terms of the visualization, there were some compromises that had to be made, one big idea was this of memory and leaving traces, and this was problematic because basically it became to complex if you could leave these traces and they would have the possibility of coming to life at the course of the whole installation period, because the space would become far to busy. My idea is that on day one the work is empty, but then it gradually fills up, with people coming in and what stays in the computer memory.

There is on the hard drive in Paris a record of everybody who was in the space during the two weeks. But we didn't show that; we only showed a very short period of time, it was retrieving only about two minutes back, you could see the shadows of movement made two minutes before, so you would eventually end having the stimulus of your own self, moving two minutes earlier.

1.1.3 Sound

The sound ended up being a kind of navigation aid. One thing that worked really well, although not a consciously designed feature, was the relation between sound and spatial position. If you left the performance border in London, the sound would become silence. Not totally because there were people coming in from other portals, but the sounds where only coming from the presence of people in the space.

Another feature was that you could hear the location of the people, from where they were taking part, although that didn't always work well. Your sound in London was a kind of "ping", and you would be able to hear that from other locations. The other portals had other sounds, like the colors to distinguish the different locations. So when I was in Paris in the opening, outside the portal, and I would hear a "ping!" I knew someone had entered the space from London. And in that way it worked really well, as a kind of summons.

This was sort of replacing vocal communication by sound communication; you couldn't say anything but you could go "ping" here I am. It was also supposed to allow you to hear where are things coming from, as monitoring the movement form elsewhere. But that didn't work very well because we only had four speakers in each portal, which is not enough to separate the sounds and make those differences perceptible. I would have liked that to happen.

Something that I became interested in developing further was the sonic dimension of the space, rather than the visuals depending mostly in the body movement, I'd like to make more visualization and space construction with the sound.

1.1.4 Space, cyberspace and place

A very big decision to take in this piece was about how big the space should be. It has in some ways a physical size, which is actually not physical, but in relation to the human, it has defined a number of units. But that could have been anything; it could be infinite or it could have been very small. But it turned out that there was an optimum size, which was the size that you have space to move around but do not get lost. It was much smaller than I first thought, but if it had been bigger then you would end up loosing yourself in the space, you would not meet anyone and end up being closed in your own world. But that optimum size for

orientation and navigation limited other things; in the end it had to be quite small, and then we could not have too many traces of previous users because otherwise it would be too full.

I guess you could call it cyberspace, I tended to call it shadow space, and that was a bit different from cyberspace, but it was just a set of one and zeros, it was an area of memory in the computer. And it existed online, you could see it on a web browser, so yes you can call it cyberspace.

I didn't really want to make the space as a place, but it did become a place in the end, although I didn't want to do that. This was really a collaborative project. I worked a lot with Phil Tew, the programmer, to the extent that he became part of the design process as well. Ghislaine Boddington was filling in with dramaturgy ideas; Philippe Baudelaut also contributed with some ideas and feedback, and the dancers that tried the system along the process were also important contributors. And they kind of persuaded me to make it more of a place.

The fact that the light became the moon was totally not by design. That appeared when Phil made the light, it was just a white circle. It wasn't intentional, it was discovered and then I grabbed it. Then it became a place, I think. It wasn't my intention but I quite liked it, it became a nightscape… a slightly mysterious kind of universe; and the floor became quite misty, it took on a characteristic, but I didn't really want to go beyond that, so there were no other landmarks.

If I were to do a technically complex dance performance for the real stage, I would generally not want any scenery, or props. Here it was the same; I wanted all the emphasis to be on the bodies and the traces of the bodies. And it had as little added to that as possible. Some of these things are related with limitations. If we do this again some things may change, but I am pretty sure that I wouldn't add more, I would stick to the disc.

1.1.5 Navigation

The space design was also linked to help navigation. To start with it was about having to deal with the problem of people getting lost. In January when we showed the work in progress in London it was a completely white space; the main problem was that there was no possibility of orientation, you had no idea of where you were, because there were no references and so you could hardly find the people form other portals.

We needed a reference, but I wanted to have the less as possible; so I thought about having a light in the middle, and when you were at the center it would be bright and the further way it would be darker; if you were out of the space it would be completely dark. That would be all that you get –you would know that if you were in the dark you were in the edge and if you were you have light you were in the middle. Like this if you want to go towards the middle, you have to head towards the light. Ghislaine and Geraldine came with this idea of telling the visitors that they should head towards the light, and if you tell everybody to do that then they would meet. But I don't think in the other places they were telling people to do that, unfortunately. That hint worked quite well.

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1.1.6 The relation with dance

I have always said that M&MS is a dance project, even though it is not dance on the stage and it is not for professional dancers. But there were dancers involved all the way through the process, and the idea, more than anything else, was to allow you to dance with someone else, and somewhere else, in the broadest sense. It was to encourage movement, and that is why you couldn't talk to people, and see their faces. M&MS was very much to be about a body relationship, because I don't think that is something you find in other places.

1.1.7 The importance of working with dancers

The dancers that participated in the process, during the various residencies, helped me a lot, particularly in testing and deciding about navigation. The dancers were also doing the project in January in the work in progress presentation, which was a pivotal moment, when we had four dancers and four portals simultaneously, as a kind of little performance. What was essential about their contribution is that they were

prepared to try a lot of things, and they wanted to do them. If this was formed with other people, just dragged from the street, they would have just stood there and do very limited, very restricted movements, whereas with the dancers I managed to explore the possibilities with a much wider range of movements. They actually helped me think of the way in which we navigate; that came about through watching how people moved in it, rather than it being a fully formed previous idea.

I needed explorers and that was what the dancers were. At that stage it was a really difficult process, and I don't think many people would have been able to do it. To actually say: I want to go there. While these dancers, after being with me for two weeks, could still have some enthusiasm even though it was quite bad at the start, the navigation.

The third thing might sound silly, but which definitely is an issue, is patience. Dancers are prepared to be around all day. They enjoyed it because they were being paid, and they tried different things, but I think a lot of other people would have found that very tedious, the dancer on the other hand they would stay there, playing and exploring, but also waiting many times until we get programming things right.

1.1.8 Visitors/users with a dance experience

I have always said that M&MS is a dance project, even though it is not dance on the stage and it is not for professional dancers. But there were dancers involved all the way through the process, and the idea, more

I didn't have many dance visitors unfortunately. I could say that with Geraldine, and you, for example, and the invigilators, who were not really dancers but they were comfortable to use their bodies. They got really good at it, after experiencing it for a while. If it was a game – which it wasn't – they would have got a high score – they could fly, and other things, more than anyone else. They were there all the time and really interested in playing with it.

I would like to do another project with dancers. You should see a video from Istanbul moment of research, which had not a space yet and the dancers were represented by dots, they were fascinated with that, to dance with themselves in those kind of representations.

1.1.9 Balance between technical aspects and aesthetic results

It was a big compromise, between technical demands and the results in aesthetics. This was probably the most technically demanding project I have done so far, even having a really great programmer working with me. It was almost not possible. And my feeling at the opening was: it works! The day before I was not sure yet. It was unbelievably stressful on these grounds.

In general I was pleased with it. There were compromises with the technology, but still I would have liked it to be more beautiful. I still find this had a kind of play station look, and I would have liked it to be more organic, which we probably can do with more time. I think it is about the resolution; I would like to make the body representations less simple, and I didn't want to have any pixels. As they were the bodies were more distorted than I wanted, maybe too abstract, they were very kind of spurious, a kind of things that were jagging.

Another aspect is the navigation, which could be more reliable. The biggest technical limitation and one that I am really not happy with the project is that you had to be so close to the screen inside the portal. That was probably a mistake of mine, but you were not supposed to be so close to the screen. That results from the distance required by the disposition of three different cameras and the distance of the projector. This minimal distance made it visually uncomfortable, and it limited the navigation: you needed to move forwards in order to go forwards in the space but you could not really move very much forwards in the real space, so that was a problem. If we do again that is number one on the list. And this can be corrected just by making a bigger box.

1.1.10 Social experience or artistic piece as a major aim

I think this work is more about the social experience. In some ways that all I did was to enable that. There are potentials we created but we didn't create in the same way you do a painting or a sculpture… this sort of result comes up quite a lot in music; sometimes if you a make a really interactive piece of music, the work becomes much closer to making a musical instrument than to composing a piece of music. You make a set of potentials that someone else can then use it in a particular way.

I am bit schizophrenic in that because a lot of my work is really not interactive at all. I make some kind of audio-visual pieces, but they are fixed media. But because I do those, when I do interactive I am quite keen on leaving it open. I am more interested in one or the other, and not something in the middle. So the public that comes to the work makes the content of the work.

A lot of people making electronic music started to get very opposed to fixed media and everything has to be performative and live. And I did that to: if the works needed to be interactive they were not fixed media

at all. But that is not me, it is not really what I do. I trained to be a composer and I like to compose. I never make interactive work on my own, or at least not anymore. At the moment I am not interested in performing my music in my own. I'm more inclined to do collaborative work. And if I do interactive then that is totally collaborative and performative. So I am also not interested in composing an orchestral piece where everything is fixed. Thus this work was really to be open to the public.

1.1.11 Innovative and groundbreaking in relation to interactivity, installations, participation

As I have mentioned before I have a problem with the word interactive. My work is not really interactive, if we think of interactive as when you do something and the machine responds back as a reward to what you have done. I don't tend to do that. This piece is different from that concept because it is about you interacting with somebody else and the machine is purely the means to make that happen. You do have the shadows coming from the memory, but you cannot control those.

What is important to me is that the project was almost the opposite of virtual reality. In something like second life, that you have an avatar, your avatar can be anything: different age, gender, creature. Here terminology gets confusing; we kept calling the person's representation in the portal screen an avatar, but in fact I meant to have a shadow, rather than an avatar. With the shadow, although abstracted, it was you, yourself. You were entering this world.

I was really interested in the idea of permeable media, it was a digital world but you almost could kind of get in it, and this is quite unusual. And such effect is related with the way you make the body representations and the portal.

The portal was meant to be a perfectly empty cube; just simply a cube, with a fourth wall in televisual terms, being the space. There was no visible technology, no controller, just you in a box. That was a really important aspect, that you interact through your body. This was part of the whole idea of the project, but I also wanted to make the technology invisible.

1.1.12 Extending to a home-based, private experience

Before we had the idea that cyberspace is an entrance from private to public space, and this was impossible to do from home for many years and now it is changing with the kinect camera. A big part of this proposal was the idea that it was cheap (it wasn't actually, but still quite cheap). But yes the idea was that it would be all made of things that you could go into a store and get the equipment needed. Like the PC, it was quite an expensive one but it was just a PC, and the kinect – a 100 pounds each - and it was just a four channels sound system that you can get to play games, and a fairly simple video projector. So the whole thing… the whole technology for all the portals cost about 5000£ which is not nothing, but for this set up it is quite cheap. There is one thing interesting about the kinect, is that it is cheap. To do the same ten years ago you needed millions of pounds. Two years ago you could do it for a hundred thousand pounds, and now you can make motion capture for a hundred pounds, which is what for many people in the world is an affordable amount; that I find really exciting.

The idea was that this should be cheap and easy to build; what I would like to do, although the MADE team were not so keen on this, was to do a kind of open source system. A kit online that you could download the software, buy a computer from the computer shop, and a few kinects from the game store. The number of portals was in this case four, which was intended because of the partners, but they could then be a hundred.

Some of the problems of the project were problems of the kinect. The kinect doesn't fit most people's domestic situation; and I know because I tried using it with my kids. I don't think a lot of people have room for the kinect, the size of the box that we used is the kind of amount of space that you need to use the kinect; and that is why game controllers are much more successful. People are not using the kinect that much and I think that is partly related to habits: people are used to passive entertainment, sitting down.

I would consider making it more worth for a professional context, to have people from the dance community for example using the system, but there are real problems, difficulties. The kinects we used in one portal, which were three, needed to be in an exact position in relation to each others (otherwise they wouldn't work), and even then it took a longer time to calibrate them, each one of them, and you need three kinects in one spot. And the space had to be dark, which might be difficult to get in domestic space. But there is a new kinect coming with the new x-box and that will remove some of those limitations. It will be much less fussy about light, and because it is more accurate it will need only two. But you will always need two.

1.1.13 The overview or performance view

The participatory is the most important aspect of the project. The overview is absolutely secondary. It would be interesting to see what is would become in a longer-term development of the project. If it was up for years

with many portals, it could become a very different thing. But in that format it as about four people in four portals.

Some interesting things came up. At one point we've got, by mistake, the two views in one portal, you could see the overview s well as your own view. One of the things that came up with the project's development was to make it more like a game. And some of the things that have been made for games have been useful – like having a little map so you could see where you were. That has become fashionable in games. But in some cases you take away all the bits that are related to the games' progression and status of the player – like how many lives, ammunition, etc; so instead of the sort of technical monitoring you see breathing effects or blood, as results of your activity. In *Me and My Shadow* the idea was that everything is focused in a singular view; I find interesting that anything which can take you away from that is removed.

But I did like that overview and I had the idea that if you could jump up in the air then you would be able to stay in the overview for a while a see the work like that, and then return back.

I only intended to have the overview online. The idea of having it on a screen outside of the portal was not mine. I didn't want that to start with; this was a result from the collaborative aspect of the project. Being able to see the overview, see the space you were going to be part of, was nonetheless a really good idea and it was important, because it added a lot. I think we only got that in London and that is one of the reasons, I believe, that people got more of the experience from the portal in London than in the other places.

1.1.14 Fitting categorizations and Institutional policies

I think it is quite difficult to categorize this work. Certainly the terminology is hard to grasp. I was never quite sure how to call the people inside the portals, were they audience, performer, player, user? I guess the closest is a player. It is provably closer to that than anything else; but this is not really a game, because there is no score, there is no aim. And I think this kind of proposal is going to be more common phenomena. I think that a key part of the identity of games is that they are designed for adolescent boys, so they have a very specific kind of structure. But a lot of other people don't want that and I think as games open out to a broader audience – which they are doing I think – then that goal orientation will change. An early example is Tetris you can't win, there is not an end in that, the end is loosing.

I knew quite early on where this work was going to be: very public spaces, such as the National Theatre in London or the arcades in Brussels. It was meant to be for anybody, and not an intellectualized society. In terms of academic reception, I am academic, and I justify everything I do as research. I have a get out door. Because some of the work done here is so technically innovative, I can argue for research in that sense. What can you do with this technology and that is kind of enough . so I don't really have to justify it in terms of aesthetic research, and I am kind of happy with that, because of this and that. I am a strong believer in play as a way of exploring things – as this was the case. The fact that I am stretching the technology seems to be enough and people don't seem to mind that I am not presenting papers about this.

Also as an artist I'm not elitist. So I am not very worried with exposing in the top gallery circuit. But yes, we went to some trouble with NESTA funding, having some negative feedback from there. The project was never questioned, but they were doubtful about the research we were going to do. And actually on telepresence all together; they didn't really seem to understand the value of telepresence in its own, which was quite shocking, for Ghislaine in particular.

I can understand that; those questions. Being able to communicate or dance with someone in the other end of the world is interesting in some ways, and in others it is not. I've been through this issues myself; it is quite easy to say… so what? What is the point if there is someone just here I can dance with.

1.2 Ghislaine Boddington, *Body>data>space* - Interview

This interview was done on the 7th of August 2013, at the company's office in London. I have met Ghislaine Boddington regularly - once a year throughout my research. We know each other since 1999, when I participated in a workshop about body and technology organized by her in Berlin, with Shinkansen.

Ghislaine Boddington has been an important contact ever since to keep me informed about what is going on in terms of research within digital technology and the arts, particularly the performing arts. I have often discussed with her issues that concern this particular study in informal gatherings. We have talked before about *Me and My Shadow*, when the project was being created (during 2011), and on site when it was displayed at the National Theatre in London, June 2012. In this interview we went through several aspects of the work, but from the perspective of her creative company

Body>Data>Space, namely by addressing its connection with previous telepresence projects and other collaborations with Jo Hyde; discussing how concepts such as embodied interactivity and digital mobility, which have driven her research for many years, are applied to practice in this particular case; and the impact this project had in the public sector, both in terms of audience reception and future applications.

1.2.1 Connections between Body>Data>Space and M&MS, working with telepresence

Jo Hyde applied with *M&MS* to this open commission call from MADE network, and I was part of the board of the network then. So I didn't vote on that project. I answered questions about it but did not vote on them. But me and Jo did a lot of chatting about *M&MS* and I did help with the structuring of the project and the way it would work, before the application. That's why I stepped out in the voting. When he got the commission it became clear that BDS would be more involved in the production side than the others, but we managed to rebalance that between the partners. I was part of the team in the dramaturgy and Philippe Baudelaut (from CDA) was also in as an observer, who helped with documentation and feedback.

This is probably quite a normal collaborative crossover between a set of people who have crossed over before, for many years, like ten 15 years. So those experiences were linked again in this project. And Jo will say it to that it comes from his background of working in sound and people's action to visuals and site perception – which here was related with putting people inside the box – and crosses with my background on telepresence.

Jo came to work with us with telepresence in the Berlin workshop – KT_BT in 1999 – and he has collaborated with us since then. He has his own work, in sound particularly, but also with visuals, and sound that creates visuals, and installations where people go into the spaces; so interactive immersive experiences have been part of his previous work. This is a direct line to *M&MS* because of this idea of a person going into a box and then something happens, with an interface that is using digital technology, and that something is coming form that user, rather than from dancers on stage.

I see it as a clear evolution from previous work of Jo, and converging into that notions about telepresence and motion capture, because those are the tools that were available. M&MS couldn't be done before kinect because for public use having a motion capture set on optical or other systems, would not be feasible. So we could now try telepresence in a much more easy and different way than we were doing it 15 years ago, because of bigger broadband and many places being connected. And these things together informed Jo Hyde to make this project; using this box situation, of going inside and going from there to somewhere else, I see it as taking you into another world situation.

1.2.2 Body>Data>Space position regarding digital mobility

We tend to keep the body of the person, dancer user in the middle of that, and we are talking about the mobility of people. In the European context that was framed in both contexts of the professional and the public and within the framework of physical mobility and virtual mobility. As partners of MADE we were looking for a project that would blend those things and establish a connection – not really between the cities that we ended up it – but with the communities of those places.

In a wider European context the mix between physical and virtual mobility is very important today and it is much more a natural part of the life of younger Europeans – either through chatting, or making and audition (like online job recruitment and auditions), or working away from their home for four months or moving away for two or three years. If they have moved away, the virtual mobility within those countries to return back to their family friends or colleagues is equally important. Trying to get a two way conduct to where you physically are and where you virtually need to be linked.

We are using the tools but also the concepts of digital mobility within a physical mobility mode. This enables people to be think about themselves and see projects that use virtual presence as a much more natural way of being, moving in an out of communities, to where there is work available, skills requirements, or needing to study. Physical mobility may happen jus to be in a different place for a while, or going to a major city instead of a being in a rural place or vice versa. In terms of life and career orientation the situation is really different than when I came out of college. Maybe I was in a crux of this change, realizing then that maybe I didn't have to stay in the same place, in the UK. I can travel because I might not be able to get all the skills and experiences I need here, I must look around me, physically travelling; but then after the 1990s this was also possible through emails, chartrooms, or telepresence.

1.2.3 Introduce full body telepresence to the public sector

For Shinkansen – my previous collective – the projects were mainly directed to create work with workshops form artists coming from lots of different places; more on a professional side first and only after putting that in the public sector, as a sharing moment.

With Body>Data>Space we have shifted the focus more to the public user, as a first priority, and thus choosing to work with artists that also have that priority. In that sense *M&MS* for us has been a major development, I have a "we got there" kind of feel – because anybody that went to in that box (the portals), had the chance to experience telepresence in a way that before was very unlikely to be accessible to do in other scenarios away form our professional community. We wanted to get that experience much further, make it public, so a much wider amount of people could become aware of what that means: to be digitally mobile while still preserving that physical self. This kind of project helps people to understand but it is not way out there from their life experience. It is not a different world that you can enter; it is really just around the corner. People when they try it they go in it very fast. So we want to make this available for a wider sector of people rather than just for artists, and hopefully we will get much more people to experience it.

1.2.4 Relating through body and movement with yourself and the other

A central question is about how do we relate with a mediated self and mediated others; and I think that one great thing about *Me and My Shadow* is that although the figure is an abstraction, you immediately see yourself, in full body; and the feedback is very precise in terms of movement – there is no lag; you cannot see your whole self, in clothes, that is part of Jo Hyde's aesthetics, it was his choice, committing as well with the possibilities of the software.

One important addition is that because it has 3 cameras, rather than a 2d representation this is 3d (as it happens with a second life avatar). I see that people definitely have an immediately relativity as one's self and it doesn't matter if it doesn't look like you in the usual way because it looks like you in other aspects: it is your gestures your movement.

Having certain elements reproduced exactly, like clothes for example, or the face, would maybe even be distracting. In the end that is irrelevant here; people relate to their abstract self because it is doing exactly what they do. And once they relate to that, I think the immediate acceptance of others in abstract form is there, because if you accept yourself in abstract from you also understand the others. And you know they are doing the same process of self- recognition. They are doing it physically and see it done in their avatar. They wave, they put their hands in the air. There is a very fast mediated bridging that happens: oh that is me, I accept myself like that and by accepting myself in this form I accept others to. If he or she (gender is irrelevant) is waving in the virtual site then he or she must be waving in their physical portal.

People got that very fast, a lot of them did not have any performance background, and then of course what you realize is that some people are really good at moving, children, or adults, women or men, and within the world itself we would great and meet anyway. When we are with people in the physical world, we judge - I think it is about 70% - on what comes out of that person as body movement, and how they look… body behavior says something, only 7% is what you say and another part is tone of voice. The body behavior is absolutely reflective, even with kids. A lot of it has to do with body. In M&MS that issue is there from the start. Another issue is about navigation inside the space. But the gesture stuff and body part people don't find it hard.

1.2.5 Response from non dance-expert users

Kids, dancers and gamers, even chair gamers, find it much more easy to engage full on with this experience. One of the dancers we had in the testing phases is a big gamer and he was very useful in setting the parameters for navigation – like the impact of gestures and speed of movement mirroring in navigation terms. He knew already how to navigate from a chair so he just had to extend that with his experience as a dancer.

In relation to others I think: 1) that everybody can dance. There is almost nobody who has never danced before, at least in parties, or weddings… In lots of other cultures dancing is much bigger than in the West but even in Britain the dance culture is very high; from line dancing, to club dancing, performance, classes, zumba, fitness. I have always come from that place of belief: dance and percussion are so much part of our body.

The issue is more of giving people time to be in those places. If you give very short runs, like 5 minutes each, they wont really do it. In this kind of experience, in order to engage properly, they need to go past 1) the relativity of themselves, 2) the navigation inside the space, which takes a bit longer; it is quite different to have a full body commanding how the world moves around you. That process takes time and it is a bit disorientating at first. However, once people got on top of that – like if they get a 15 minutes slot – they

explore much further. Some of people ask more for a bit of help than other. Thus the invigilators are very important, because they explain how it works, and they suggest things to try out.

Because it is in a private space and inside a black box, people suddenly explore with what they know, you can actually see where is their dance background, if they had any dance in our lives. Your disco moves come out. Then if someone in another site copies this movement, the relativity extends to the other which is remotely connected.

Gesture was a very strong and recurrent mode of activating the system. If I wave, someone waves back. Some people arranged to meet others: like a mother and a daughter, one in London the other in Paris and they were there at the same time which was really nice. In this case the people realized they could connect to others they know, but mainly the people are meeting with strangers. But there again it is not actually like dancing in public, this was a private-public space. Jo Hyde was very keen in creating the private box, which helps going from the singular to the collective. It is always this I-we coming in the shared environment. I think that space is quite freeing.

1.2.6 Determination in keeping the body at the center of these activities

I have not tried the Google glass yet; I know they are playing with the concept of how people get used to wearables, but the glasses are something that physically isolates you. Once you are in it, your perspective is focused in one direction and you loose the wide perspective that we know our eyes have got. It is a bit like the mobile phone on the street; when you see people talking, and looking at their phones as if there isn't anything around them. The same happens with Google glass. Everyone is looking up and into the screens, and they are not paying attention to what is happening right here (in the outside, real world).

I think that engaging the body is also an issue about the I/we and how do we input with our I in that we; it is about what we choose to share. I might want to share my cardiac data with my husband because I am ill but not with the rest of the world, and my mum for example, she has Parkinson, she might choose to do both – share her bio-digital data with the close family and doctor but put it also out there for the common good, for studies about Parkinson.

This sort of work links with data sharing and the relevance of body data, being put into a central virtual space, that you can choose what you share and when. With multiple communication online and a wireless and full body connection, this sharing process is more natural.

1.2.7 Future applications and moving M&MS to private space

We have done a lot of brainstorming with business people and other artists, and we have done big mappings of how could we develop further applications. We are interested in education, and retail is also interested. Health and well being is also a possibility; we are quite interested in the application for the health sector, like physiotherapy, they are working a lot with avatars. Domestic space is also an option but it is difficult, because you would have to be in front of a television. But it is not so far off.

We are talking quite a lot with business and health and education. Of course some artistic sectors but there is not much money there. We would like to work with kids, and we are looking at special needs and creative industries. One of my ideas would be like having four guys, that work at the back of games like club penguin for example and spread them out in the four portals and have them experimenting with our system and tell us what are they needs, how do they feel it works better for them, etc.

Obviously we want to interest theatre and dance people, and being able to collect the data and then observe it later for the purpose of qualitative research and say that was magic – and see why through data analysis – finding that in the data. Is there something we can find? Is there something that we can make interesting to analyze for us? Like looking at data and bespoke directions for dancers for example; sorting out choreographic directions by data analysis.

Brian Massumi and others were writing and talking about possibilities like this in the 1990s but they were not possible and now they are. Doing movement analysis through data analysis. We are not going to find out what is magic through the analysis data, but through the use of body data we can supplement analysis on what the experience is. Looking back at what worked well and then repeat it, suggest it in the invigilators, or education projects.

1.2.8 Promote aesthetics and the artistic in *M&MS* or social experience

It is good to be able to present the project for its value as a social experience. We can bespoke it to the client in that sense; but we wouldn't necessarily have to replicate a board room with tables and chairs, which wouldn't be highly challenging. But if a client would want that and give us in return a big budget, which would allow us to continue as well the experimental part of the project, yes we probably would go for it. But for that purpose the body can be smoother; it would take more data to be video, as a pure telepresence

environment. We have been asked to put virtual objects in there, to attend to digital archiving (being able to access books that cannot leave the British library and exist in digital copies). In fact we can add game objects. And there is the potential to do things like a football game.

Aesthetically we would like to try a full telepresence body –an I-video kind of thing – there is probably a few modes we like to try. But there are also issues in there, like broadband signal, and higher resolutions. A quite fundamental aspect is how fast people find their relativity; this was well achieved in *Me and My Shadow's* form in June 2012. I think it is partially because people are not distracted by what they are wearing or their facial characteristics; it is a much purer, kind of fluid state stuff, and ephemeral.

My dream is that we would be able to gesture and shift things wherever we are. We fulfilled with this project the idea of full body motion, unwired and directly from physical to the virtual, which I have been on for years. We didn't want to be tied down.

With the collectives collaborating either for Shinkansen or BDS, we have never worked seriously with motion capture in public space. We have always used it more for post-production work - capturing first and using it later, not in real time. This has enabled it to work with the public because it is simple to set up, cheap enough and it works well, and we don't have to tie the public down with leads or cutting them through the knees, or head mount displays. This you who is there and its free from. The mocap side of it has really evolved. Not for everyone, but the technology is more accessible for private use.

As we know Skype is being used by many people. There are family projects for example, using full body and Skype. The same was happening with avatars as soon as the WII came out. Anyone can make an avatar for themselves today. And the same now with mocap which is a big breakthrough; this makes it possible to think that in ten year I can change things remotely by moving in my space. Your gestural control in a very natural free form way becomes useful. That is sort of my dream. A bit like telerobotics and uncanny valley. We are way ahead of IVF, and things like that. Now all the integration of technology with our lives is much more accepted (31.30). Changing what we consider is natural. If we can keep the body at the center for that and not laid with objects, and hardware.

As typical with a new thing that comes up (although telepresence and mocap are not new things) the kinect will be going through a five years period of intense research - and improvements will change a lot of things. We are looking as well for new sources of funding, and I think retail and health sectors might be more fruitful. The academic sector is not really investing in this because they are not interested to put big thinking in there. And the arts of course have no money for this.

We do have social purpose, and not many art companies have it; and we have had good supporting, from arts sector, university sector, educational, commercial, media, and we have managed to put together a good package of entities.

1.2.9 Being in the borderline, where does this work fit, who can link with it

For ourselves this is a very natural step in the same direction we have been following for a while now. From Shinkansen's work, Jo Hyde's work, BDS… For us it is actually been a kind of relief that the kinect had come out, even though we did have some problems with the first model, and which we believe will be corrected with the newer one.

I think quite often with these projects we just do them anyway. It might take time to get them together, to get money for them, it does rely in two or three people believing you and the worth of that proposal. There has been key people that are not really sure of what will come out but they say okay, I'm going to go with it, and they let us use the space or fund us.

Me and My Shadow happens at a stage that we are well established, we proved ourselves, we are known for this kind of work, we have a lot of years of experience, and it is recognized. Things like the national theatre coming in is great it gives us a good status, and they have great spaces and production conditions, like the studios, and equipment.

I think the art sector, the wide art sector is so behind in this digital world full stop. It is mostly funding programmes that kick them in to try with the digital. Most people, on the wide art sector would not understand what the project is, even using very simple language, but in fact nobody gets until they have done it, and this is particularly relevant with immersive experiences. You can't observe or judge form outside and do an analysis on it. You have to get in and do it. *Flaneuring* in this case is not possible. People that haven't been in virtual worlds of any type, who are in the digital sector (arts or ever) are in a difficult situation now. They haven't got the experience of the virtual-physical interface. Half of what they are saying about digital is not coming from the right place. In Britain and elsewhere the digital consultants in the middle ground area might have done a lot reading but not these immersive experiences.

In the innovation sector there is no problem at all. In the G8 innovation conference where I was invited there was only one person from the arts. And in the various networking moments where I met a few people we have exchanged some ideas; I explained we are mixing telepresence, motion capture and social networking, and people had no problem at all in understanding what I was talking about. If I said that in the broader arts sector, forget it, I couldn't even talk like that.

In the digital arts sector I think there are some similar projects – there is a clubbing one where you can stick avatars in the dance floor – and telepresence projects have a history coming from the 1980s, so actually the technical analysis is fast, the actual society analysis is weak. They are doing it for each other, not for the public sector.

1.2.10 Where is this work acknowledged

We are getting coverage in the academic sector and digital art sector, and on the press side we got very good coverage from the TV, radio, etc. into tech programmes, young people programmes. We did not get much from the arts area; we got some, but not much and I find it is really not worth investing on that because we are not doing it for the arts sector; we are doing it for a wider public understanding of virtual-physical space and embodiment within virtual space.

Our work is recognized as unique within academic and arts sectors; it is being more and more recognized. There is a project at National Theatre about futurology and they are aware that this was one of the most innovative things they have done in that area, that will contribute to research about virtual stages, like linking national theatres, and plays being written for virtual connected stages, at a national level this is recognized, also by NESTA.

We are not thinking much about specific areas now because a lot of the feedback of people was related to using it in different sectors. We know that in order to develop this further, except for touring, we will not get money form the arts funding bodies, so we are looking at other applications and sectors: retail, education, health being.

So we are not really interested in judgment from the arts sector anymore. I think even Jo is actually more concerned with the academic sector than the arts sector.

1.2.11 Withholds and opportunities for dance professionals

I think a key aspect for artists to relate with these technologies has to do with access; access to tools is essential but most artists don't have the studio and set up to work with these tools. The concern about loss of liveness is also there, but I think that is not so much of an issue today; I have had two or three people presently telling me that yes, they did not understanding me at all in the 1990s, but I was right, everyone is doing it and it is everywhere.

The people in the dance sector know that the technology is there, and that the body debate is happening in sectors related with digital technology. They will be put more into the middle. And people that know movement and body – maybe not from dance – might be from physiotherapy and alternative movement – or biology, people with internal / external body knowledge will become part of the user design process, which is now focused in integrating the human, through the body.

I would really hope that within ten years, all research about HCI involves people that work with movement, movement experts, I can see it going that way. Big companies, like Sony, are now doing interdisciplinary workshops for research of their products, as we did 10 or 15 years ago. So people from those areas are interested in bringing dance people into that research and development. I think the dance sector and the younger generations will follow it, some will stay off the boat and other will take onboard, like Shobanna Jeyasingh is finding ways to integrate the digital in her work. Newson and Wayne have always been on it.

1.2.12 Technology as a tool or a method, rather than an end – lack of research on new places and body resolution

That sort of debate was happening more in the 1980s. Meanwhile some books have come out (Dixon, or Kozel) but they don't tend to pin enough on identity, body representation, relation with the other, and the shift to the digital.

For me the digital is nothing but a way to extend ourselves, in order to do, meet, connect instigate, educate, whatever are our needs, that is all it's there. So I find it hard to understand why people have not put their debate in that direction, of the tools available. Maybe we as BDS are so in it that we don't see into what extent people are not getting involved.

Some artists can't really go there, and it is not just a matter of age. Some do go there; mature artists sometimes are more able to go forward because they have known their language and methods in the physical world so well. They can't ignore it. And then some very few are thinking on how to put their work in the digital.

There is still a lot to do with these tools in terms of being good for creative use; it is also a big effort to get used to let go of the control of the work, although much has improved regarding this form the 1990s to the 2000s. Some amazing work is happening with urban games – like Blast Theory have done, with play based theatre pieces (Coney are very good). I think there is a generation, a third one coming from there.

There is a whole new sector of theatre companies working with that, some have a lot of movement techniques, like Punchdrunk.

1.2.13 Overview of the development in the past 15 years; setbacks to the community

It is true that the gatherings happening before in the late 1990s and early 2000s, with specialists from the performing arts, the digital arts and computer science, we don't have them anymore. Younger people coming in have to go through the same experiences. But you need body and technology experience, and there are more dancers that know that now, but not many; a lot of them are actually related to us, really.

I can see new and different bits coming up (diffuse – want to use the kinect) we are working with a deaf artist. We tend to still spend two to three periods a year in studio, which intercalate with admin, production and marketing, that sort of work is more exciting, and feeds the rest a lot.

Intelligent stages are now much more set up permanently – Microsoft has set up one in Soho – and this is not coming through the arts. These places started setting up for dance in universities, since the Arizona State University experience but we are still having to set them up from scratch. I would really like to have some space we could have regularly to experiment, that we would not have to set it all up.

There will always be a complex technical back end for a simple front end but the more we work in it will improve. We now have a problem with the boxes, the set up of the boxes is complex for touring. Not the equipment. Galleries are used to build, but not theatres, and it costs and takes labor and people, and we have design plans. But I would have loved to have done it in a light dome, that we can fold, as a theatre mobile structure.

Like the screen arts have been working, although quite slow, in a network of showing spots in different cities and countries – so a digital work that premières in New York can then be sent to urban screens in other countries.

Maybe that is what we need to see in the next few years. The theatres are more open to use their foyers and stuff and there are galleries open to more performance. M&MS we had quite a few interesting requests for the future. So I am hopeful that even with the big box we can go somewhere.

We saw a Slovenian piece that was very good, and it was a very early stage piece, only with a camera and a screen in a room and you would meet up with other people in a dance floor, but more stick based figures.

2 Section 2 - Joseph Hyde & Body>Data>Space - information available online

This section regards a short compilation of information provided by Joseph Hyde in his online project Blog and his personal website, as well as in Body>Data>Space website

http://madeshadow.wordpress.com/ , http://www.bodydataspace.net/ , and http://www.josephhyde.co.uk
[all links accessed 12 November 2014]

2.1 The artist and the collective

http://www.bodydataspace.net/who-we-are/associate-artists/jo/

Joseph Hyde – Sound and multimedia artist

Joseph Hyde is a musician and sound artist, with a long history in electronic music and sonic art. His recent work has moved into multimedia, where he is interested in the idea of 'visual music' – musical ideas explored through visual media. As well as making his own visual music works, he is undertaking a long term study of pioneers in this field, in particular Oskar Fischinger. He is also an enthusiastic and experienced collaborator, particularly in the field of dance. Here he works both as a composer and in a broader capacity working with video, interactive systems and telepresence. His interest in movement and interactive systems has led him to an intensive exploration of the revolutionary Microsoft Kinect sensor, through several collaborative arts projects and theoretical writings. Hyde also works as a lecturer/academic, as Professor or Music at Bath Spa University in the UK – as well as teaching on the BA Creative Music Technology. He

runs the MMus in Creative Sound and Media Technology and supervises a number of PhD students. Since 2009 he has run a symposium on Visual Music at the university, Seeing Sound.

http://www.bodydataspace.net/who-we-are/core-team/ghislaine/

Ghislaine Boddington – Creative Director

Ghislaine Boddington is an artist researcher, dramaturge, curator and thought leader specialising in body responsive technologies, recognized as an international pioneer in full body telepresence. She has created live links between thousands of participants/audiences across the world for educational, performing arts and creative industries usage since the mid-nineties. Ghislaine extends natural interface techniques, advocating the use of the entire body as an interaction canvas. Her work examines the representation of our physical selves and our identities in virtual environments and the hyper enhancement of our human senses through the digital transmission/reception of body data, such as touch, motion, biofeedback and gesture. As a dramaturge she has led numerous interdisciplinary creation projects, experimenting with the convergence of the live body with virtual environments, telepresence, motion capture and sense/gesture tech. Recent dramaturgical input for virtual/physical immersive installations include 'me and my shadow' with UK artist Joseph Hyde and 'Visions of Our Communal Dreams' with UK/US Artist Michael Takeo Magruder. Ghislaine has chaired and keynoted events/conferences in over 30 countries worldwide, most recently in China, USA and East Europe, talking to a diverse range of audiences about the future of virtual physical body interfaces. She is regularly featured on TV, radio and in the press, giving thought shifting inputs to BBC Business World, BBC Click and the New Scientist amongst others. She is an author for IntelligentHQ, sits on the TDPT editorial board and is juror for international creative industries and digital arts competitions. She is invited as a key innovator to governmental briefings/conferences in UK and beyond. A co-director of the Creative Guild, she is a Fellow of the Royal Society of the Arts and an Artist Research Associate at ResCen, Middlesex University since 1999.

http://www.bodydataspace.net/

body>data>space - Weaving the human body into the digital domain

body>data>space is an East London design unit creating innovative connections between performance, architecture, virtual worlds and new media, placing the body at the centre of digital interaction.

Emerging from the pioneer digital performance collective shinkansen/ Future Physical (1989-2004) we use our own collaboration and networked creation processes to vision the future of the human body and its real-time relationship to evolving global, social and technological shifts.

With our base in London, body>data>space is regularly producing, curating and presenting international group projects**.** Members of body>data>space hav**e** 20 years experience creating intercultural and inter-disciplinary exchange projects across Europe, Asia and US. Our network connections are wide, high-standard and visionary.

We bring together a mixture of emerging and recognised talents from the technology and innovation, arts and culture, creative industries, academia and science sectors, gathering a high level of skills, freshness and expertise.

We are able to bespoke teams and shape project to respond nimbly to particular client needs.

Partner organisations can come in alongside us to provide specific needs such as live web streaming (Kinura). On larger scale projects we regularly extend our teams to involve international colleagues from throughout Europe, the US and Asia – a top level set of artists and digital creatives we have had connections with for many years.

http://www.bodydataspace.net/who-we-are/

Core Team

Ghislaine Boddington– Creative Director, Lee Curran – Technical Consultant, Lighting Designer, Leanne Hammacott – Associate Director / Creative Producer, Michael Heap- Business Development, Coralie Hyde – Web Manager, Marie Proffit – Development and Marketing Co-ordinator, Armand Terruli – Creative Director

Associates

Geraldine Atger – Digital Public Engagement, Ivor Diosi- New media artist / virtual worlds, Vesna Grandes- Dance artist / choreographer/ teacher, Joseph Hyde- Sound and multimedia artist, Nat Mortimer – Film, video and installation artist, Yuli Levtov – Co-founder, Reactify, Gemma Riggs – Film, video and installation artist, Nick Rothwell – Sound artist / software architect, Sasha Spasic – Dance artist / Choreographer/ workshop leader, Michael Magruder – Virtual worlds artist / interaction design, Sheron Wray – Choreographer and dancer

Ongoing Partners

Centre des Arts – France, Chambers / SKA Culture, Europe House / 12 Star Gallerie – UK, FACT (Foundation for Art and Creative Technology) – UK, Gabriela Tudor Foundation – Romania, IntelligentHQ – UK, KIBLA – Slovenia, Kinura – UK, Modulab – Romania, NESTA – UK, RAN

Digital Art Network – International, ResCen / Middlesex University – UK, Sheron Wray, Transcultures – Belgium, Watermans Art Centre – UK

2.2 List of works / projects

2.2.1 Joseph Hyde

http://www.josephhyde.co.uk/

Sound Projects: *in sunlight* | *SevenWaves* | *to the last syllable* | *Burnt Out* | *GoldGlow* | *vox mecanix* | *Manic*

Sound is at the core of pretty much everything I do. I've been involved in lots of kinds of music, from classical (I play the piano and the trombone, not very well) to pop (I've played in the odd band over the years). I've done all sorts of things, from playing the piano at posh parties to playing in Brass Bands while I was growing up 'up north'.

Video Projects: *Songlines* | *Zoetrope* | *Nekyia* | *SolidSound* | *End Transmission*

Although I'm essentially a musician by trade and training, I've been making video works for many years now, first in collaboration with film-makers/ animators etc., then latterly often on my own. I've always been interested in the visual side of things; and found that in the digital age, skills learnt working with sound can readily be applied to video.

Live Projects: *subliminalTV* | *Live Sampling*

When I first started out making electronic music (back in the late 80s), I made a number of pieces incorporating live instruments, sometimes incorporating very basic live electronics. However, at the time I was somewhat wary of more involved live electronics – work in this area tended to involve very complicated bespoke set-ups, which tended to mean things had a nasty habit of going wrong, and also usually only happened once, since no-one else had the same kit.

Installation Projects: *Zoetrope* | *Periphery* | *Hidden Histories* | *RememberMe* | *danceroom Spectroscopy* | *Me and My Shadow*

Installation work is something I've returned to from time to time over the years. It's remained slightly tangential to the core of my work – I find this kind of work can take me a little outside of my comfort zone in terms of skills (I've never been particularly good with a hammer or a saw), and also that the logistical problems can take over (making something that can run, day after day after day, without ever going wrong or crashing). Quite apart from anything else, I can never find anywhere to put the things once they're over.

Dance Projects: *The Sweet Flesh Room* | *Trans Avatar* | *Amplified* | *Japan Workshops* | *Ecstatic* | *Second Body Smile* | *anatomica#3* | *The Autopsy Project*

I've been working with dance for most of my career in one way or another. Mostly this work has taken the form of music/sound scores, but over the years my role has become more varied. I've also been involved in video for dance productions, interactive technologies, workshops and even software development.

2.2.2 Body>Data>Space

In http://www.bodydataspace.net/what-we-do/projectsbackground/

Projects and background

9 years since we started **body>data>space** in March 2005, a creative industries design unit emerging from Shinkansen and creating innovative connections between performance, architecture, virtual worlds and new media. Expert outputs recently include the convergence of full body telepresence and motion capture within virtual worlds.

Projects include: skintouchfeel (2005-2007), ideaspheres (2006), Post_Me/New_ID (2007-2009), Dare We Do It Real Time? (2009), Freeze-B (2009), E-motional Bodies and Cities (2001-2013), Robots and Avatars (2009– ongoing), MADE (Mobility for Digital Arts in Europe) (2010-2012), me and my shadow (2012 – ongoing), Women Shift Digital (2013 – ongoing)

25 years since the original collective **shinkansen** set up in March 1989 as a "sound and movement research unit exploring the new digital age". shinkansen developed a unique niche within the British and International arts scene through facilitating connectivity between dance, performance, music, video and digital technologies (1989-2004). The collective specialised in body responsive technologies, and was recognised as an international pioneer in full body telepresence- creating live links between thousands of

participants/audiences across the world for educational, performing arts and creative industries usage since the mid-nineties.
Projects included: Voice Over Festival (1990), Vinyl Requiem (1993), Butterfly Effect Network (1991), Bare Essential/Gender Mayhem (ICA) (1992), European Choreographic Forum (1992-1996), Sound Works Exchange (1994), Club Research (1995), Connectivity (1996), Future Physical (1997-2004), Virtual Physical Bodies (1999 and 2008), CellBytes (2000), Virtual Incarnations (Dance Umbrella/ICA) (2001-2003), Whisper (2002), WEAR ME! (2002), Mersea Circle (2003-2005), Creative User Research (2004), shinkansen collection (2005).

2.3 Me and My Shadow / Jo Hyde –telepresence installation (2012)

2.3.1 Synopsis - teleport yourself into a deeply poetic experience

in http://madeshadow.wordpress.com/about/
me and my shadow was an ambitious project combining motion capture and telepresence. It consisted of 4 installations situated in London, Paris, Istanbul and Brussels, which ran for two weeks in June 2012. These installations operated as online portals, connected in realtime. They gave access to a 3D shared virtual environment and allowed the simultaneous interaction of the public. Equally accessible, the '5th space' of the website followed and informed the project's development, and showed an overview of the virtual space while the installations were in operation.

The object of this work was to invite the user to interact and to communicate with both their own representation and with that of other users, in a visual and sound universe, immersive and progressive, combining motion capture (based on multiple Microsoft Kinects) and telepresence. The 'shadows' that users cast in the virtual space could at the same time sculpt three-dimensional objects and sound, while their movement also allowed navigation and interaction with other users. Each user was encouraged in this way to experience in realtime a true physical and ubiquitous choreographic language but also to explore new connections between the geographical, social, physical and virtual universes of these 4 places.

me and my shadow won a competitive selection process as the centrepiece of MADE (Mobility for Digital Arts in Europe), a 2 year co-operation project supported by the EU's Culture programme (2007-2013) between lead organiser centre des arts Enghien-les-Bains (Paris, France) and partners body>data>space (London, UK), Transcultures (Mons, Belgium) and boDig (Istanbul, Turkey). Joseph Hyde's project was selected in April 2011 by the MADE Jury, to benefit from 4 successive residencies hosted by the MADE partners in each of their countries. Funding came from the European Commission, The Arts Council of England, and several other sources. The final installations were presented in the centre des arts, the National Theatre (London), Galeries Royales Saint Hubert (Brussels) and santralistanbul (Istanbul).

In http://www.bodydataspace.net/projects/meandmyshadow/
Teleport yourself into a deeply poetic experience. Connect and interact in a shared virtual space with people across the world.
A deeply immersive experience consisting of separate connected portals, presented in 2012 between London, Paris, Istanbul and Brussels, me and my shadow is an international telepresence experience that connects participants through a shared online environment. Equipped with 3D motion capture devices, each portal features interactive life-size projections and immersive soundscapes. Participants are represented as live digital shadows and can communicate with each other in the real-time digital environment. *me and my shadow* invites you to interact and perform with other remote users in an endless dream. In a richly aesthetic experience, the installation enables you to project your full body into a virtual world, to play with your shadow representation and to sculpt 3D shapes.

Dance with strangers, virtually feel and touch and breathe, meet your friends or family in Brussels, Istanbul or Paris.
Intuitive, experiential and visionary, the work questions the way we communicate with others online and the traces we leave in virtual space. me and my shadow invites you to re-imagine identity and self-representation in an increasingly blended virtual/physical reality: How does it feel to see yourself and perform as an avatar? Who is who in the virtual world?

2.3.2 Open days - venues and calendar

In http://madeshadow.wordpress.com/premiere/

Enghien-les-Bains (Paris) - Hall du Centre de Arts
Info: www.cda95.fr
10 – 16 June – Sund-Tuesd 12 pm – 7 pm / Wed-Sat 12 pm – 9 pm
18 – 26 June - Mon– Fri 12 pm – 7 pm / Sat 2 pm – 7pm / Sund 2pm – 6pm
London - National Theatre – ground floor foyer
Info: www.nationaltheatre.org.uk/visiting
10 – 26 June - all day event
Brussels - Galeries Royales Saint-Hubert,
Info: www.galeries.be
10 – 17 June: 12 pm – 9 pm
Istanbul - Santral Campus, Istanbul Bilgi University
Info: http://bilgi.edu.tr
10 – 16 June - Tues–Fri 1 pm – 6 pm / Sat–Sun 1 pm – 8 pm

2.3.3 Team

Joseph Hyde – lead artist, concept, visual and sound design (bio below)
Phill Tew – lead programmer, designer (bio below)
Istanbul Residency
Aylin Kalem (boDig) – Producer; Tolga Tüzün (boDig) – Coordination
Dancers/Choreographers/Performers - Stephen Champs, Dilek Champs, Beliz Demircioglu Cihandide, Yigit Daldikler, Banu Pekol
Ghislaine Boddington – Dramaturgy; Philippe Baudelot – MADE observer / Documenter
London Residency
Ghislaine Boddington (Creative Director – body>data>space) – Producer/Dramaturgy; Leanne Hammacott (Associate Director – body>data>space) – Producer; Marie Proffit (body>data>space) – Communications and Development Coordinator; Geraldine Atger (body>data>space) – Residency Coordination; Lee Curran (body>data>space) – Technical Coordination;Toby Coffey (National Theatre Digital Media) – Producer; David Sabel (Director National Theatre Digital Media); Nick di Vita (body>data>space) – Dancer / on site support; Sasha Spasic – Dancer / Rehearsal direction; Amina Khayyam – Dancer; Philippe Baudelot – MADE observer / documenter
Mons Residency
Philippe Franck – (Transcultures) Director; Nicolas Thys Wilde – (Transcultures) Administrative manager; Lucie Knockaert – (Transcultures) Production manager; Emilien Baudelot – (Transcultures) Technical coordination;Aurélien Giraudet – (Transcultures) Portal design/build
Ghislaine Boddington – Dramaturgy; Philippe Baudelot – MADE observer / documenter
Ana Cembrero Coca – Dancer
Enghien-les-Bains Residency
Jeremie Sananes –Co-ordinator; Thibault Moreau –Video and computer technician; Ghislain Louvard –Stage technician; Gad Cohen –Builder / Painter; Magalie Hausler –Builder; Stephane Nicolas — Builder; Grégory Bidault –Builder; Marie Lesage –Cultural Coordination. European & International Partnerships; Philippe Baudelot – MADE observer / documenter

2.3.4 Audience and press feedback – Me and My Shadow

http://madeshadow.wordpress.com/feedback/
Below is a small selection of comments from the visitor's book in London..

"It's fantastic to be connected with other people at the same time!!"
"The whole world should be connected like this, amazing"
"Glittering and magical – Like an electrical heaven"
"Very different experience, the shadows are brill"
"An amazing experience, almost out of body. It was fascinating to see what I was doing"
"Thank you for this amazing and impressive moment"
"Magical, beautiful, futuristic and brilliant. I danced like nobody was watching… you should do the same… always"
"It was fun to dance and move like a maniac – and cause chaos in a digital dimension. Well done"

"An experience of the future, fantastic!"
"It's really interesting to see how people leave their traces in a virtual world and interact regardless of language or location"

The blog lists about 20 links to articles in TV, Radio, press and websites but since there are not quotes this has not been added here. A selection of articles will be provided in section 3B of this appendix.

2.4 Me and My Shadow / Joseph Hyde – Blog information (2011-2012)

http://madeshadow.wordpress.com/

September 16, 2011 (visual) Kinectic Scuptures

We've had a real breakthrough today. One of the most important aspects of me and my shadow for me is that players should actually be able to create, to shape, to sculpt the environment with their bodies and gestures. Without this, it's 'just' 3D telepresence (still a pretty exciting and new development, but not – I suspect – really unique to this project). I might have downplayed this aspect when talking about it in the early days because I really had very little idea how it might function, or indeed what it might look and sound like. But it's really come together while we're here, and for me that makes this residency totally worthwhile already.

For me, the idea really came together while thinking how the sound might function (see below). But I really also have to give Phill a lot of credit for some great brainstorming on this, as well as super-quick coding. His key idea was to combine the two things that the kinect can do – it can give you a reasonably realistic 3D 'mesh' of what it's seeing (ie the shape of a person's body), and it can give you a 'skeleton' – basically a set of points for the key joints of the body, from which a 'stick-man' model can be derived. Nobody much seems to be combining the two (though please feel free to correct me on that), but the combination seems to have a great deal of potential.

What you can see in the video here (apologies for quality, we're just filming off a laptop screen) is a trail of glowing points – particles – left by each of the key skeletal points of the body (as mentioned, this is the exact same principal as I'm using with the sound). These leave perfect 3D trails of movement (think 'nude descending a staircase', sort of) which will be an ideal starting point for sculptural forms. The particles are smaller/less intense the faster you move – this might seem counter-intuitive, but it really works. If you walk quickly through the space you'll hardly make anything happen, but if you stay still or move slowly the particles will slowly coalesce around you.

September 20, 2011 (dance) Second workshop

We've now reached the end of two workshops with professional choreographer / dancers. These proved extremely useful in highlighting issues (strengths and weaknesses) with me and my shadow as it stands so far, and pointed up many ideas for future development. Thanks, boDig and MADE, for making these workshops and this residency possible. It's been great to develop the project with so much input, thought and enthusiasm from others.

Yesterday we spent quite a long time setting up the space (quite tricky- the Kinect can be a fiddly little blighter). We then spent most of the session going through some quite rigorous exercises with Ghislaine Boddington. These are exercises, or games (because they were fun too!) that she's developed primarily in telepresence projects, some of them with myself. They really help in getting used to working with and through the camera, and the relationships with space, screen and others the situation throws up. In this instance they highlighted both the similarities and the differences between what we're doing and video-based telepresence. The crucial one is that the 'real' camera (the kinect) and the virtual one are totally independent, so the viewpoint shown by the video can be anywhere, entirely at odds with the physical placement of the Kinect. This is both extremely exciting and rather challenging.

You'll see from the videos below that we kept the virtual camera pretty much static for the first workshop. Today, having established a strong orientation with real and virtual spaces, we were able to free things up a little bit.

Here are some of the things we explored:

1) we turned off the 'tracers' (the particles that trail behind the skeleton points) and just focused on the actual representation of the body in the system. We found that it's extremely different depending on distance – close to the camera, the body looks quite solid, and really quite detailed – you can actually recognise someone, and facial details, clothes etc. are quite deliniated. As you get further away you become much more abstract, and the inaccuracies of the Kinect much more pronounced. Yes, it's obvious, but we found some very interesting results juxtaposing near and far, and playing with the rather distorted depth of field of the Kinect camera.

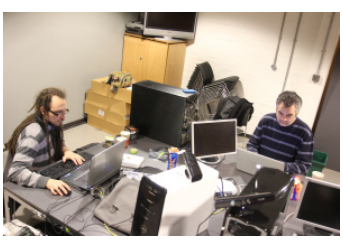
2) we tried out various combinations of tracers. Overnight, Phill programmed in the capability to turn them on and off. We found that less is definitely more, and the most interesting point we found to track was the central point of the spine. This was really interesting to discover. I now have an embrionic idea that we should represent the various tracers differently – some more prominently than others. I like the idea that there may be a 'trunk' tracer (the spine, say), with little filaments branching off it to represent the others.

3) It's really interesting the way people and things appear and disappear. The Kinect is surprisingly fussy about this. As you edge into frame you won't appear until there's enough of you visible for the Kinect to recognise as a human form, at which point you'll suddenly pop into existence. The reverse can happen too, and relationships between people and objects can do strange things – kind of turning each other off and on. It can be an interesting phenomenon, and also does strange and rather satisfying things to the sound (yes, we have sound now, although it needs a lot of refining) as lots of points of sound appear or disappear at once.

4) the virtual camera is both the most challenging and the most interesting thing. It's fascinating to look at the body and physical movement from unexpected viewpoints, but it can also be very confusing. Over the course of today, I felt that Phill developed quite a skill as a 'virtual cameraman', choreographing the movement of the virtual camera expertly and artistically with the dancers. This makes things look much more interesting – the videos above (today's) look far more dynamic and three dimensional than yesterdays when the camera was largely static.

January 3, 2012 (general) Happy New Workshop

….and so to the start of the second residency in London at the National Theatre Studio, hosted by body>data>space and National Theatre Digital Media. It feels very exciting to be right in the core of London at the very start of 2012, even if it is raining and very cold!



By the end of the Istanbul workshop, we had a working prototype of one portal; the aim of this workshop is to get all four working, albeit still in prototype form, and in one place rather than four different countries. I've found from previous telepresence projects (with body>data>space amongst others) that this is a very valuable evolutionary stage, allowing a rapid flow of aesthetic and technical development and dialogue which would be much

more clumsy (and slow) over a distance.

In this instance, it might have been hard to find a space suitable to house all four portals at once, but fortunately, the National Theatre have just the space – the Weston Studio, a long tall space which could have been purpose built for us. We're in there next week, working with some of bds' regular dance collaborators (who are particularly experienced with telepresence setups) and culminating with a process showing on Friday 13th (perhaps we could have chosen a more auspicious date, but there you go).

This week we're working in the seminar room on the code – this is also fantastically fit-for-purpose, with a big table we can set all the machines up on and get them talking to each other.

January 4, 2012 (visual) Traces and Statues

Although we're supposed to be working purely on the technical/networking side of the project, we don't seem to be able to resist tinkering with the aesthetics too. We're working on the 'shadows' – how the users leave traces in the space. In Istanbul we had a live representation of the user, and particle trails left by the main points of the skeleton tracking. We're now experimenting with something in between – 'scultpures', which are versions of the mesh left behind as the user moves (kind of like shedding a skin).

This is the first version, actually from late yesterday. I don't like it much, yet. We've been discussing it today, and these are our notes as to how we want to evolve from here:

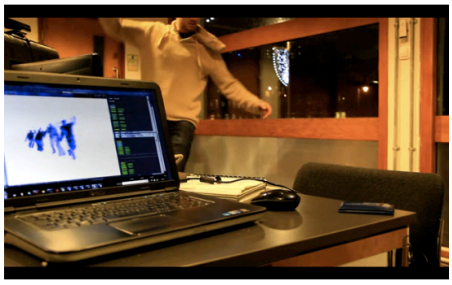
General: 'sculptures' and 'trails' need to seem like one and the same thing rather than two different entities.

Sculptures: These dominate too much, especially those which are closest to the camera, meaning they completely obliterate the trails. Those which are further away look much better, which would lead me to believe that in the final (telepresence) scenario, the 'others' would look OK, but your own sculptures would block out everything else. Also, the sculptures give no impression of movement – because they are captured at regular intervals, they give the same impression as a moving body photographed with a strobe light – ie with all semblance of movement removed.
Suggested solutions would be to make the sculptures more transparent, and to capture them in a different way – certainly less regularly. They could be sampled as to how much movement is going on at any particular time, or – best suggestion for now – 'bursts' of movement could be sampled which will give a better record of movement and make for more abstract shapes.

Trails: These need a bit more 'volume'. Replacing the particle image (currently just a dot) with an open circle will improve this, but we need to produce circles frequently enough that they never look like a series of circles (paper chain) but always like a transparent tube – kind of like an electron microscope image of a hair. It would also be good if the diameter of this could vary – perhaps in accordance to amount of movement again, or even randomly, but within constraints – ie with a 'wobble' rather than completely random.

January 6, 2012 (General) Navigation

One of the biggest challenges facing us in this project has been how the user might navigate around the virtual space. Today, with a bit of input from Laura Kriefman and Matthew Bickerton (thanks guys..), we cracked it!
Here's Nick demonstrating it.



Basically, we've turned the whole space into a virtual joystick. There's a central spot – if your spine is in line with that there's no movement, while moving any part of the spine (ie leaning or stepping) away from this point will move in that direction – the further away from the point, the faster you will move; and (this is the clever part) twisting the shoulders will rotate your orientation. It's perhaps a little sensitive at this stage (we can adjust that), but I think it really works!

January 9, 2012 (general) Multi Portals

Bit of a milestone this. We've got four portals working together for the first time! Actually, I'll be honest – three portals. No idea why the fourth didn't work today, but we'll get there. Still really exciting anyway. Here you can see Sasha in 'Paris' – her 'shadows' are red, Nick's (in 'London', next door) are purple, and Amina's (in 'Istanbul' next to that) are pale blue. We ironed out some serious kinks to do with the scale of

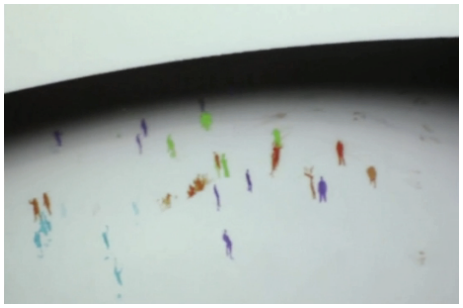
the space and the navigation today; there's still one major issue in that you can only see the shadows from the other portals, and not a live stream of those users, but I feel this is a huge step forward..

January 16, 2012 (general) ***closing London residency***

This is a final round-up on the last few days at the National Theatre Studio – these were VERY intense for all of us, and left very little time for blogging. I did however manage to get quite a lot of documentation, which I've been sifting through and editing over the weekend and put up here. Here are a few little notes and explanations:

Videos (above, be sure to watch these ones on full screen!) – the first one was made on Thursday, and is probably my best attempt to capture the project so far. We used two cameras – each capturing two portals, so hopefully you can really see the interaction between all four (give it a bit of time...). The angles aren't quite right as you can see, but this was as near as I could get it. The sound is a direct feed from the computer, so is the best representation of where we're at with that. It's correctly panned to that the sound for each portal comes from more-or-less the right place. The interaction between sound and movement seems to be clearest towards the end of this clip.

The second video uses the two cameras but with just two portals (and sound just from the camera mics). It's a bit more of a rush-job as it was made just before the process showing on Friday – sorry for chopping your heads off, Nick and Sasha! I wanted to include it though because it shows a number of refinements made overnight between Thursday and Friday. The main change is that we finally have a horizon – might seem like a small thing, but it was very important for me, and makes orientation in the space much easier.



The third video (a bit out of focus – sorry!) shows an overview 'fly through' of the space, so you can see the scale and shape of it (we plan to have something like this on display on the outsides of the portals, and also hopefully online). You can see how the horizon works – it's basically a circular space that fades to black towards the edges. This is a very rough approximation of my idea for next stage of the project, where there will be lighting, with a very bright light in the centre of the space. You'll know where you are because the further you get from the centre the darker it will get.

The last video shows an inverted version of the image – again this gives and approximate idea – this time of what the final world might look like in the darkness of the edges.

We were very happy with the way the process showing went on Friday – it all went off without a hitch, I felt it had a real buzz about it, and we got some really great and useful feedback. Many thanks to everyone at body>data>space and the National Theatre Studio and beyond who helped to make that happen (sorry not to list names here, but you're all in the 'People' section).

Next step Mons at the end of March, where we'll be focusing on the aesthetics of the piece, making it look (and especially sound) beautiful. I expect there'll be developments in the meantime, and be sure I'll post them here.

March 29, 2012 (audio) Sound from Scratch

I've completely re-thought the sound over the last couple of days. I didn't develop it at all in London as we focused on the core logistics of getting four portals working, so as the piece started to take shape the sound didn't really keep up.

One of the key things we developed in London was the way in which users can be creative in the space, and we ended up with two paradigms – 'shadows' (we called them 'sculptures' in London, but shadows makes more sense given the title of the piece) and 'traces' ('trails' in London, but I think traces sounds better). The former is long term, and full-body – regular imprints users leave in the space. The latter is short-term, and involves the particles left behind by the key points of the body (which we first developed in Istanbul).

Only the latter has been sonified so far, making a bit of a disconnect between sound and image. I've also realised that the shadows potentially have more audio, and audiovisual potential. If the shadows get left at regular intervals (but different intervals for each user), and these have corresponding audio events, then some nice polyrhythms can be produced. These would be more sonically interesting that the signification of the particle traces, which are so numerous that they tend to produce overly-dense sounds, which just blend into sonic soup. They could also provide cues to the users as to when the shadows will be created, and – being more clearly identifiable, could even help with the navigation.

April 1, 2012 (audio) Sound development

I've evolved the sound a bit more over the last few days. It's the same basic idea and material, but with a little more variety in terms of the layers I'm using and the way they're controlled. I feel like this is a bit of a balancing act here – it needs to be quite approachable I think, given the sheer variety of people who are likely to engage with the final piece. But it also needs to be distinctive and characterful – I don't want to play to the lowest common denominator. It also needs to be interactive, but I want it to have a convincing musical flow to it. It needs to be a result of the users' movement, but also encourage people to move (in some way be 'good to dance to'). Finally it needs to be sparse enough that cause and effect are clear (I'm hoping the sound might function as an integral part of the navigation and general usability), but complex and varied enough to be interesting. Tricky..

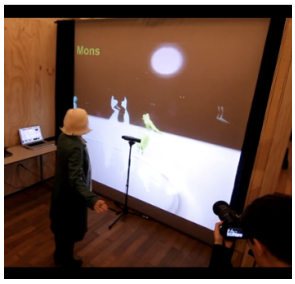
April 4, 2012 (general) Portal Build

Significant progress has been made with the first physical portal this week, which is very exciting. Yesterday I went down to Aurelian's house in the French countryside, where the portal has been taking shape in his garage. Very impressive and imposing on first sighting. I also went to see the site that has been arranged for the opening in June, which is equally impressive. This Galeries Royales St Hubert, right in the centre of Brussels, just literally off the main square. It's a great big space, very light and airy, and no-one will be able to miss the great big me and my shadow portal appearing from nowhere in the middle of it, like a 2001 (the film, not the year) monolith (thanks Nicolas for that one). This is being arranged with the Cinema Galeries, who have been very helpful and enthusiastic – thanks!

Today the portal arrived in the chapel. The design is great for putting up (and taking down) super quickly, just like lego (and I love lego). It's still not complete, as it doesn't have the inner (fabric) wall or a roof, but I think it'll serve for now to give an impression of what the space will feel like. Today we're moving all the equipment etc. into there, and hopefully we'll have a prototype portal!

April 7, 2012 (general) Mons Process Showing

I mainly wanted to post an image and movie from the process showing on Thursday which ended the Mons residency. Hopefully they speak for themselves, since the primary focus of this stage was to develop the visual and sonic aesthetics. Neither is completely there yet – we had some technical limitations in this residency as we didn't have the high-end PC we'll use for the finalised portal, and could only use two Kinects, while the final portal will have three (and finally not have a Kinect stuck in the middle of the screen!). Also of course, it's only one portal, so the other three users aren't there. I'm happy that the 'look and feel' of it is approaching the final form though, so mission accomplished! Thanks to all at Transcultures for making it happen, and the University of Mons for hosting us. Now, on to the final stretch, the final residency in Enghien-les-Bains, Paris in May, and the opening in London, Paris, Brussels and Istanbul on the 9th June.



May 30, 2012 (general) Living in a cardboard box

I had a not-so-fun distraction at the weekend – my laptop died, completely, on Sunday. Impeccable timing, as it always is with such things – not only is this two weeks before the me and my shadow premiere, it was a

Bank Holiday weekend. Absolutely EVERYTHING was shut, not only in Enghien but in Paris too – even the Apple Store. Despite this, I managed to score the right tools to open up my MacBook Pro, borrow another one, bodge together an 'enclosure' for my drive, boot from it and keep on working – I was quite impressed with my resourcefulness, and the kindness of strangers. I'm now working with my drive – ie my life, and all the me and my shadow sounds, in a cardboard box. A little bit scary. Don't worry, I did back up!

June 11, 2012 (general) Up and Running

It's been a whirlwind few days – I haven't had time to post, and really I'm too tired now. However, I had to at least let you know that we're up and running. I've been back in London, and we were working frantically right up until the launch, but then everything has gone super smoothly for the launch and the first two days of operation. Phew! I've been very happy with it, and we've had some great feedback from visitors. Come and have a go – details are, as before, in the PREMIERE section (see above). If you can't physically make it to one of the portals, then you can see an overview of the realtime virtual space HERE (do bear in mind that this is realtime, so if you log in when the portals aren't open, you won't see much).

Stream

This is a live stream of the whole virtual space, seen from above (and rotating slowly). Look out for purple people from London, orange from Enghien, blue from Istanbul and green from Brussels. Real living people will be moving, glowing brightly, emitting circular pulses and leaving little trails. Non-moving figures are 'shadows', the traces of people who have been in the space previously, activated by the live pulses.

When you're in one of the portals of course you are one of the tiny people, and you'll see the space from that perspective – very different! The stream is hosted by the Centre des Arts – many thanks to them.

2.5 Previous projects: Periphery, Cellbytes, Post Me - New ID

2.5.1 Periphery (date) Joseph Hyde

In http://www.josephhyde.co.uk/installation/periphery/ [accessed 26 November 2014]

Periphery mixes a lo-fi aesthetic with a touch of seedy glamour, fairground-attraction illusion with high technology. It shows you yourself; refracted, distorted, multiplied a hundredfold. But these alternative selves aren't always quite with you; unreliable and unsettling mimics, they may linger a little longer than they should; glitch, flicker or fade. Sometimes these digital ghosts are joined by others you don't recognise, traces of movement left by earlier visitors; figures from the past, captured and frozen. They speak – a low babble of voices you didn't notice at first, fragments of words; questions you can't quite catch. Try to reply and your words bounce back at you, scrambled and disjointed, a parody of echo. Periphery explores issues of representation, identity, observation, memory and otherness. It presents fleeting instances, images just caught out of the corner of the eye, words on the tip of the tongue and half-remembered songs. It happens on the very edge of the field of vision and at the threshold of hearing. It forces you to fill in the blanks. Commissioned by DA2 (The Digital Arts Development Agency) and the Watershed Media Centre (Bristol). Also supported by a Research and Development Grant from the Arts Council of England.

2.5.2 Cell Bytes (2000, 2001) Shinkansen

In http://www.rescen.net/Ghislaine_Boddington/workshops/cellbytes00.html#.VI9auifnJ4w [accessed 26 November 2014]

CellBytes00 - 15th – 30th July 2000 , Arizona State University

A two week research residency held at the Intelligent Stage and Dance Studio Theater, Arizona State University, Phoenix AIM, CellBytes 2000 invited two teams of European and U.S. artists to participate in a research residency, which created a series of 1 to 3 minute performances for simultaneous live and web presentation.

This was the first of a series of workshops researching 'telematic performance work', which refers to the use of a telecommunication network to establish links between two remote spaces at the same time and to present

the activities in those two separate spaces variously as a single performance event. In the case of Cellbytes, these activities, at the same time, were presented using current software and hardware technologies to make use of the Web as a third performance 'space'.

In http://www.rescen.net/Ghislaine_Boddington/workshops/cellbytes01.html#.VI9ZbCfnJ4w [accessed 26 November 2014]

CellBytes01 - 18th July - 5th August 2001, Middlesex University, London

CellBytes01 was a joint research residency project between shinkansen and ResCen, the third in a series of CellBytes research intensives by shinkansen which have evolved and developed research into the body, presence and telematics. CellBytes01 focused on extending creation and performance processes, through remote but connected stages. Based on the extension of the body into virtual presence, it explores real time links between sound, movement and image.

Integrating advanced learning practice into artistic production, CellBytes01 created new paradigms of creativity in an environment of exchange, practice and debate. Primary questions CellBytes01 explored include: What is live? What is natural? What does it mean to be embodied? Can one inhabit multiple worlds through multiple identities? What evolutions of touch and intimacy, empathy and trust are possible with communication through telepresence?

In this context, the phrase "telematic performance work" refers to the use of a telecommunication network to establish links between two remote spaces at the same time and to present the activities in those two separate spaces variously as a single performance event. In the case of Cellbytes, these activities will, at the same time, be presented using current software and hardware technologies to make use of the Web as a third performance "space". In addition to the telematic work - another aspect of the Cellbytes project has been to utilise a triggering/ sensor environment in each space. This has had particular implications for the dancers who need to adjust to several degrees of disorientation in the spaces. The group process model being used on this project is inter-authorship with a very strong emphasis on the pooling of skills and ideas, the constant interweaving and, in particular on this project, the crossover between the creative processes of dance/ choreographers and media/ technician artists.

2.5.3 Post Me – New ID (2007-2009) Body>Data>Space

In http://www.bodydataspace.net/projects/post-me_new-id/ [accessed 26 November 2014]

In 2007-09 a collaboration between body>data>space (London, UK), CIANT (Prague, Czech Republic) TMA | Trans Media Academy (Dresden, UK) and KIBLA (Maribor, Slovenia) looked to examine the complexity of 21st century European human identity – with an exploration of the evolution of cyborg culture through technologies of the body, supported by the EU Culture 2007-2013 programme. The 4 organisations worked closely together to identify and investigate the challenges this poses to contemporary creation and the emergent artistic practices. The final output from this project is a Book containing essays and reflections from many of the artists involved in this project plus the keynotes and panel conversations resulting from the Post Me_New ID Forum at CYNETart_08 in Dresden. The focus was particularly engaged in Multi-Identities and Networked Creation Processes in today's world.

Post Me_New ID examined the complexity of 21st century European identity through an exploration based on the effect of digital technologies of the body and identity. A series of debate led Research Engines took place with a Forum and Book as the end products. In addition a series of Creation Processes resulted in the public Installation / Performance "DARE WE DO IT REAL-TIME?". The premiere of the performance outcome "DARE WE DO IT REAL-TIME?" from the project Post Me_New ID took place at Kinetica Art Fair on 27th and 28th February 2009 at P3 exhibition space, in Marylebone London.

3 Section 3 – collection of press articles Me and My Shadow

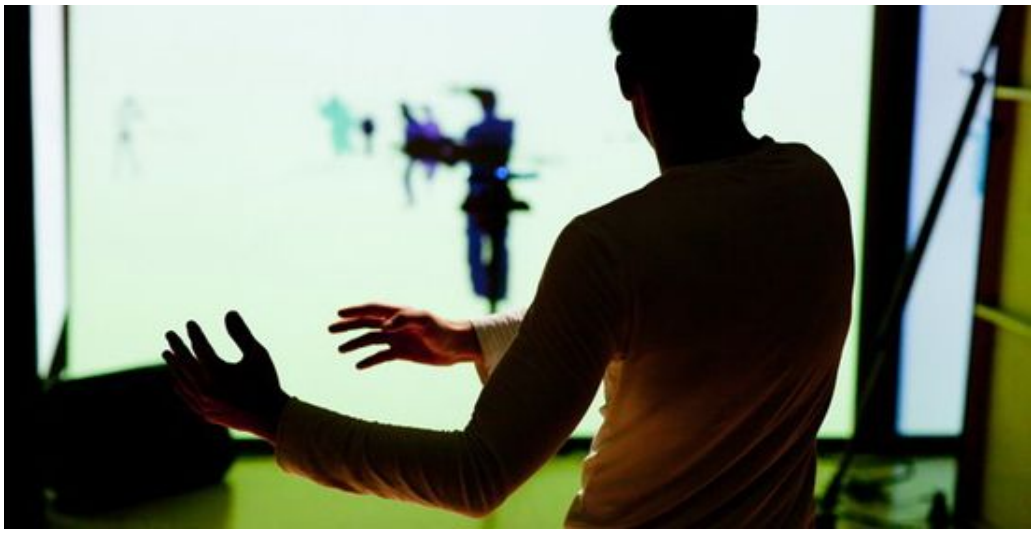
http://blogs.elpais.com/arte-en-la-edad-silicio/2012/06/cuatros-portales-para-entrar-en-un-mundo-virtual.html

EL PAÍS

BLOGS TECNOLOGÍA

Cuatros portales para entrar en un mundo virtual

Por: **Roberta Bosco y Stefano Caldana** | 21 de junio de 2012



Hasta el 26 de junio, el **National Theatre** de **Londres**, ofrece la posibilidad de **participar en vivo y directo** en ***Me and my shadow***, la flamante **instalación telemática** del artista inglés **Joseph Hyde**, coproducida por el teatro y el colectivo londinense **body>data>space**. La instalación se puede **experimentar físicamente en cuatro ciudades europeas** contemporáneamente y **en tiempo real a través de Internet**.
Me and my shadow, que además de la instalación ubicada en el **National Theatre** de **Londres**, se presenta en **París** (Enghien-les-Bains), **Bruselas** (Galeries Royales Saint-Hubert) y **Estambul** (Istanbul Bilgi University), **pone en relación los espectadores** presentes en una sede con los demás portales que componen la instalación, **integrando sus siluetas o avatares en un quinto entorno virtual**, un espacio sonoro imersivo y tridimensional, donde **pueden interactuar con los avatares de los otros espectadores**. La instalación **invita a reflexionar** sobre preguntas como ¿**Qué sientes al verte representado por un avatar**? y ¿**Quién es quién en el mundo virtual**?

En cada espacio físico el público presente se encuentra con **una gran pantalla** que le **introduce en un espacio virtual** donde convergen las siluetas de las personas presentes físicamente en cada espacio real. El público puede **interactuar telemáticamente** contribuyendo con su imagen y movimientos a una performance en tiempo real, durante la cual controla su posición en la pantalla y se desplaza en el espacio virtual, algo así como **un universo plano y abstracto**, tan sólo con los movimientos de su cuerpo y entablando una **comunicación visual creativa** con las imágenes de los demás participantes.

Las **instalaciones telemáticas**, que ponen en relación a través de la tecnología **espacios lejanos** y permiten la **interacción conjunta** de usuarios de diferentes lugares en un mismo entorno, real o virtual, **aparecieron a principio de la década de 1990**. Entre las más populares, el inolvidable ***Telegarden*** del artista e ingeniero estadounidense **Ken Goldberg**, un jardín compartido a través de Internet, que funcionó durante casi diez años, durante los cuales internautas de todo el mundo pudieron controlar la siembra, el riego y el desarrollo de las plantas, a través de un sencillo y eficaz sistema formado por un brazo robótico y unas webcams.
"En el caso de ***Me and my shadow***, la novedad es que **se utiliza por primera vez el sensor Kinect de Microsoft** en una instalación artística telemática", explica **Joseph Hyde**, profesor de música en la **Bath**

Spa University de **Bath** (**Inglaterra**) y creador con una **larga trayectoria en el ámbito del arte sonoro y multimedia**, conocido por integrar armoniosamente en sus trabajos distintas disciplinas como el vídeo, los sistemas interactivos y la danza contemporánea.

La **tecnología Kinect** es ampliamente utilizada en las **nuevas generaciones de videojuegos** para interactuar con los elementos de la pantalla tan sólo con los movimientos del cuerpo. ***Me and my shadow*** utiliza por primera vez un sensor de este tipo en una instalación telemática interactiva, de modo que en cada portal **toda acción realizada por el público** es capturada en tiempo real e **integrada en un espacio virtual**. Este entorno, que se puede ver también vía Internet (y en pantalla completa), reúne contemporáneamente el **público presente** en las instalaciones físicas, junto con las **sombras/avatares**, que han dejados los participantes precedentes.

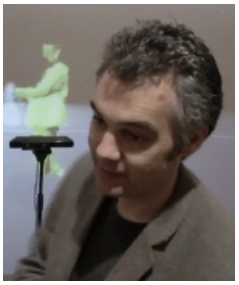
El proyecto, que está despertando mucho interés, involucra el público de manera abierta en una suerte de ***performance*** **participativa**, que mezcla **dinámicas de interacción social a distancia**, sin ninguna componente de comunicación verbal, sino que aprovecha exclusivamente las **potencialidades expresivas del lenguaje corporal**. El público se identifica con sus sombras virtuales, que les permiten interactuar con los demás visitantes de manera intuitiva, confrontándose a través del **lenguaje del baile** y con los movimientos, actitudes que son también favorecidas por el entorno inmersivo sonoro en el que se desenvuelven.

Me and my shadow ha sido coproducido por el National Theatre y por el colectivo artístico londinense **body>data>space**, que organizó recientemente la exposición *Robots and Avatars* en el centro de arte **FACT** (Foundation for Art and Creative Technology) de **Liverpool**. El desarrollo de *Me and my shadow* ha sido posible gracias a una comisión de **Mobility for Digital Arts in Europe** (**MADE**), un iniciativa patrocinada por el programa cultural de la Unión Europea.

http://www.rslnmag.fr/post/2012/06/14/DIstanbul-a-Paris-un-corps-a-corpsnumerique.aspx

Jusqu'où gommera-t-on la frontière entre réel et virtuel ? Par un projet **unique en son genre**, l'artiste britannique **Joseph Hyde** tente de la réduire encore un peu plus. Sa dernière œuvre en date, ***Me and my shadow***, propose de filmer votre corps avec Kinect puis de projeter son image ainsi numérisée à l'écran, telle une **ombre virtuelle**.

Et ce n'est pas tout. Après avoir remporté le soutien du **Made**, un programme européen en faveur de la culture, Joseph Hyde s'est vu proposer quatre endroits différents pour répartir son installation : à la **Istanbul Bilgi University**, au **National Theatre** de Londres, dans les **Galeries Royales Saint-Hubert** de Bruxelles et enfin au **Centre des Arts** d'Enghien-les-bains, à côté de Paris.
L'intérêt ? Comme vous pouvez le voir dans la vidéo, les ombres des utilisateurs de ***Me and my shadow*** évoluent en fait dans un même monde virtuel, où les corps, qu'ils soient en France ou en Turquie, peuvent se rencontrer et où un **dialogue par le geste** peut démarrer. Une façon plutôt impressionnante de **fusionner l'espace et le temps**, d'autant plus que les avatars ne sont rien d'autres que les corps eux-mêmes.


Jospeh Hyde et son « ombre » projetée en temps réel

Sur chacun des sites, Joseph Hyde, en collaboration avec le développeur **Phill Tew**, a pu régler pendant deux semaines tous les détails pour créer cet univers à part, dans lequel « *étoiles, lune et vibrations* » se rencontrent.
« *Je voulais réussir à faire quelque chose qui n'avait jamais été tenté auparavant, combiner Kinect avec la téléprésence*, explique l'artiste. *L'œuvre devait selon moi être tournée vers le public, être facilement compréhensible pour divertir.* »

Si vous souhaitez bouger, danser ou simplement marcher aux côtés d'autres cobayes audacieux, ***Me and my shadow*** est accessible jusqu'au 23 juin 2012 au **Centre des Arts d'Enghien-les-bains**, ou sur Internet pour un **avant-goût** du résultat.
Jason Wiels le 14/06/2012

Jason Wiels le 14/06/2012
Photographie : Crédit : JP Berthoin

Kinect Effect art danse téléprésence motion capture

1. PRESS COVERAGE

PRESS Campaign Estimated impact:
Up to 205.660.000 adults worldwide

RADIO

BBC WORLD SERVICE Click / World International/ 19/06/2012
Technological and digital news from around the world.
BBC WORLD SERVICE Audience: **up to 166 million adults.**
http://www.bbc.co.uk/programmes/p00t7x3x

TV

BBC ARABIC 4Tech / World International / 11/07/2012
4Tech is the only programme dedicated to technologies on BBC's Arabic-language satellite TV channel. Reviewed by Anees Al Qudaihi
BBC ARABIC Audience: **up to 32 million adults** weekly in Arabic-speaking countries.
4Tech 's target Audience: Young Generation, Adults.
http://www.bbc.co.uk/arabic/tvandradio/2011/01/000000_4tech.shtml

INTERNATIONAL PRESS

EL PAIS / General Press / online / Spain / 21/06/2012
EL PAIS online audience: **7.7 million readers**. Spain's Number One *online* news and information site.
http://blogs.elpais.com/arte-en-la-edad-silicio/2012/06/cuatros-portales-para-entrar-en-un-mundo-virtual.html

Telerama / Print / France / 06/06/2012
Arts, Culture & Society.
691 337 copies weekly / France
http://sortir.telerama.fr/

Beaux Arts / Print / France / June 2012
Arts Specialised Magazine
59 856 copies monthly / France
http://www.beauxartsmagazine.com/

UK PRESS

Attitude.co.uk / Online / May 2012

UK number 1 Gay Magazine
www.attitude.co.uk/viewers/viewcontent.aspx?contentid=2540&catid=culture&subcatid=performance&longtitle=NATIONAL+THEATRE+INSIDE+OUT

Blogs and others

Stylus / International / online / June 2012
Stylus provides intelligence and inspiration to drive new ideas and improve profitability. Exclusive membership includes online access to our content and dedicated client services.
www.stylus.com/

Artselector / International / Online / 25/06/2012
Arts specialised online review.
65.000 readers
www.artselector.com/review/18268/me-and-my-shadow-made-commission-project-201112

RSLN / online / 19/06/2012

Microsoft France online magazine dedicated to digital cultures
www.rslnmag.fr/post/2012/06/14/DIstanbul-a-Paris-un-corps-a-corpsnumerique.aspx

Official London Theatre www.officiallondontheatre.co.uk/news/latest-news/article/item143269

A glimpse of London http://aglimpseoflondon.blogspot.co.uk/2012/06/my-avatar.html

Kinura www.kinura.com/2012/06/me-and-my-shadow-premieres-at-the-national-theatre-london/

Arts Council www.artsjobs.org.uk/arts-news/post/me-and-my-shadow-by-joseph-hyde-national-theatre/

LabforCulture.org http://www.bodydataspace.net/projects/made/meandmyshadow/

Dance Performance in Cyberspace
(transfer and transformation)

Paula Varanda

Appendix 4

Attended conferences

This appendix lists the conferences that I have attended as part of my PHD research study. In many cases I presented papers that related the thematic proposals of the conferences with my enquiry and results found in relation to dance performance in cyberspace.

These conferences served as a way of auscultation to the scholar debate going around in the dance technology field and in the new media and computation aesthetics field. Thus, they have provided fruitful insights regarding the themes that other scholars are looking at with their own research undertakings and the methods they use. This has been a way of monitoring which sources are being employed and how language is being used – I could therefore compare and assess my own work within the scholar community related with this subject (within the axis of New Media, Dance and Performance studies).

Name, date, location, summary and abstracts or observations

1-Digital Futures in Dance / National Conference on Dance and Technology

8, 9 and 10 / September 2011

Co-org: Bournemouth University - Media School & Dance Digital

Location: Pavilion Dance, Bournemouth, UK

About the Conference:

"Interactive technology has rapidly become part of our daily life – from watching TV online to using GPS navigation on one's mobile phone, and it is no different in the arena of dance. Digital Futures in Dance is a brand new conference giving artists, promoters, producers, venues, academics, creative and digital companies the opportunity to come together to discuss future possibilities for dance and technology. With an increasing growth in interdisciplinary practice, Digital Futures in Dance investigates how new digital technologies create new conditions for choreographing, presenting and experiencing dance".

Excerpt from announcement in http://media.bournemouth.ac.uk/about/news/2011/aug/ne002-dance-and-technology-conference.html [accessed 10 October 2014]

Observations from submission and attendance (Paula Varanda):

In response to one of the CFP published topics, regarding enquiry about new spaces for dance, I submitted a paper abstract called "Give Cyberspace a chance". In the abstract I was arguing that although examples and relevant theory to assist their understanding are rare, cyberspace should be addressed, as Auslander supports (1999 and 2001), as a site where successful artistic work may emerge. Such work can be delivered in domestic space, interacting through personal computers with an anonymous audience. Following Manovich's method (2001) to differentiate old and new media, I then proposed to compare computer generated and live dance works revealing how elements and processes of performance remain relevant in web-based dances. This paper was not accepted for the conference.

I have realised that the three initial themes of the conference - "The Expanded Stage, New Body Intelligence and Social Interaction" – were later replaced by "Body & Data; Archives, Preservation and New Creativity; Content and Dissemination".

I point this out because I verified that the conference state of the art revision was focused on the use of digital technologies for archive practices, devising creative processes to find new movement vocabulary, and interactivity on stage live performance. I was puzzled to see that on such a promising gathering of artists, academics, producers and programmers, envisioning the web as site for presentation of contemporary dance was a neglected and absent possibility. This made me realised that my subject was actually not a regular issue, or a matter of research, neither for practitioners neither for academics.

2 - Somatics and Technology / International Conference

22 and 23 June 2012

Org. and location: University of Chichester, Chichester, UK

About the Conference:

"Somatics, referring to a set of body-based contemporary practices has achieved widespread recognition as a form of bodily knowledge. It coincides with a resurgence of philosophical and scientific interest in the role that the somatic plays in human thought and experience, and its reach encompasses contemporary arts that challenge the primacy of digital logic through the promotion of a more body-based and sensual approach to technology (Shusterman 2008; Damasio 1994).

This event to be held at the University of Chichester will integrate critical, theoretical and practical perspectives on the conference's theme through keynote presentations by international specialists from the visual arts, dance and new media, with roundtable papers led by the speakers, conference papers and an exciting series of workshops, art exhibits and performances. Contributions are invited which might consider the following topics: Multimedia theatre and dance; Virtual and physical bodies; Motion-capture technologies;Web-based performance and virtual performance spaces; Space, embodiment, experience; Real-time video, graphics, music, lighting control."

Excerpt from announcement in http://somaticstechnologyconference2012.com/ [accessed 15 September 2012]

Presented paper abstract:
"Is the body the medium of dance?"
Paula Varanda

Philosophical enquiry, anthropological or sociological studies as well as dance analysis and criticism all contribute to understand the nature of dance as a human activity, with variable status and functions in different cultures, and variable form depending on making processes, aesthetic qualities and authorial signature.

When the crossings between dance and electronic technologies are under review, other challenges add to these conceptualizations; dance is acknowledged as a body-based human behaviour and is praised for its natural resistance to a culture that highly values reproduction and immateriality; but this art form has also experienced processes of mediation, which unsettle its ontologically perceived relationship with the body, as both source and display. Augmented mediation can be said to increase distance between the performing source and its own representation but, paradoxically, surprising solutions to reconnect the body and the dance are experimented with new media forms.

Movement and choreography are also basic constituents and other elements may equally be relevant to recognize an artwork, and a human activity, as dance. My discussion though, specifically scrutinizes the assumption that the body is its primary medium – as a generator of movement, a conductor across different media of representation, and an interface to engage with digital performance – with the capacity to transcend separations that electronic interfaces appear to establish. In order to do this academic literature from different disciplinary perspectives will be intertwined with practical examples of professional artistic projects (from the group of works I have been closely following as case studies for my PHD research).

3 - Artech 2012 / International Conference in Digital Arts - Crossing Digital Boundaries

8 and 9 November 2012

Co-org: ARTECH, CIANT and University of Algarve,

Location: University of Algarve, Faro, Portugal

About the Conference:

"Only two decades ago, interactive digital media seemed like a brand new research field and an emerging new industry. Today, a decade into the new millennium, the digital arts field has come of age and is closely connected with new digital media. A critical aspect of the digital media revolution is the formation of the new media industry comprised of information, communication, entertainment, and global social networks.

The ARTECH 2012 conference provides in-depth coverage of the important concepts, issues and technology trends in the field of digital arts and media technologies, techniques, and applications. Crossing Digital Boundaries, and seeking to foster greater understanding about digital arts and culture across a wide spectrum of cultural, disciplinary, and professional practices, is the purpose of this 6th edition of the conference."

Excerpt from announcement in
http://ise.ualg.pt/index.php?option=com_content&view=article&id=1017&Itemid=612&lang=pt
[accessed 10 October 2014]

Presented paper abstract:
"New Media Dance – Where is the Performance?" / take 1
Paula Varanda

Over the last 20 years the development of computers and digital technologies has enabled inedited incursions of dance into virtual spaces; bodies can now transcend the flesh and blood dancer and the here and now relationship with spectators, which is traditionally found in theatre dance. Artists have shown that dematerialization can inspire interesting dance, but most practices concentrate on stage, installation, or films; on the web, compelling examples of creative practice are rare. Gaps in practice mirror gaps in theory and positive views of 'liveness' and 'performativity' of media still oppose to criticism about disembodiment, reproduction and mediation of dance. If the attributes of performance are exclusive of live events in shared space, can web-based dance be considered a performing art?

This paper contends that cyberspace is a site where successful artistic work may emerge and expand in public or domestic space. However, examination is needed regarding the concepts that have been established before to define dance performance, in order to construct a supportive theoretical framework that encourages practice development and public recognition of new media dance. I will present some examples from the group of works I have been closely following as case studies for my PHD research.

4 - TKB – Multimodal Communication: Language, Performance and Digital Media

2 and 3 May, 2013

Org.: New University of Lisbon – Faculty of Social Sciences and Humanities

Location: Centro Cultural de Belém, Lisbon, Portugal

About the Conference:

"The Conference is organized in the framework of the TKB research project conclusion (http://tkb.fcsh.unl.pt) and aims to: present the results and software tools developed during the TKB project; provide a multidisciplinary forum for researchers from different disciplines and artists interested in the documentation of Performing Arts (with a focus on contemporary theatrical dance and Performance), as well as in issues of multimodality in human communication and in human-computer interaction, particularly regarding video annotation tools and collaborative platforms for cultural heritage preservation.

The event wishes to bring together contemporary artists and researchers from a broad range of academic disciplines, working within different theoretical and methodological paradigms in a creative, internationally oriented, and stimulating atmosphere. The importance of multimodal communication and creativity is now generally recognized by researchers from either the Humanities, Information Technologies or Cognitive Science. This conference therefore offers an opportunity to present and learn about research findings concerning human behaviour and agency in different types of communication and their cognitive, cultural, narrative, technological, social, textual or discourse functions."

Excerpt from announcement in http://tkb.fcsh.unl.pt/tkb-conference/programme
[Accessed 10 October 2014]

Presented paper abstract:
"New Media Dance – Where is the Performance?" / take 2
Paula Varanda

Over the last 20 years the development of computers and digital technologies has enabled inedited incursions of dance into virtual spaces; these possibilities destabilise the relationship of performers and spectators with the artworks, which are traditionally found in theatre dance. Artists have shown that dematerialization can inspire interesting dance, but most practices concentrate on stage, installations, or films.

However, although examples are rare, cyberspace is another site where artistic work may successfully expand in public or domestic space. For such area to advance, I shall argue, an new theoretical framework is needed and thus established concepts in dance and performance studies require examination.

Presently, positive views of 'liveness' and 'performativity' of media still oppose to strong criticism about disembodiment, reproduction and mediation of dance. How can new media dance classify as a performing art if the attributes of performance are regarded as exclusive of live unmediated events in shared space? This paper proposes a method to apply the concept of performance to dance that is made with new media technologies and does so providing evidence with practice.

5 - LIQUIDITY - Practice Research Symposium

14 June 2013 Org.&location: Art&Design Research Institute

–- Middlesex University, London, UK

About the Symposium:
"This one-day practice research symposium sets out to explore the many articulations, explorations and manifestations of 'liquidity' in contemporary visual and material culture, history and theory. The event offers a unique opportunity for practitioners, researchers and scholars working across different fields to engage with any topic related to 'liquidity' broadly conceived. Keynote and plenary presentations are from Uriel Orlow (artist and Senior Research Fellow, University of Westminster) and Mark Davis (Founder and Director of the Baumann Institute, University of Leeds).

"Liquid modern life is a daily rehearsal of universal transience. Today's useful and indispensable objects, with few and possibly no exceptions, are tomorrow's waste. Everything is disposable, nothing is truly necessary, nothing is irreplaceable. Everything is born engraved with the brand of death. Everything is offered with a use-by date attached. All things, born or made, human or not, are until further notice dispensable. Paraphrasing an old and famous statement, I would say that a spectre hovers over the liquid modern world, over its denizens and all their labours and creations; and that is the spectre of redundancy". (Zymunt Bauman, 'Liquid Arts', in Theory, Culture and Society, 2007, v.24(1): 117-126)

Excerpt from announcement in [accessed 10 October 2014]
http://www.adri.mdx.ac.uk/domains/adri.mdx.ac.uk/local/media/images/medium/liquidity_programme_14june2013.pdf

Presented paper abstract:
"Dance performance in cyberspace: anxieties of dissolution in the free world of hybrid arts" Paula Varanda

In his observation of art that reflects about contemporary society, Bauman highlights the compression of time, the fragmentation of materials and the improbable encounters and results enabled by the juxtaposition of references from distinct historical epochs. Aesthetic values have shifted from solid artworks to public space and social life, and the long lasting artwork is replaced by a kind of event-artwork. Liquid Modernity is a consumerist culture in accelerated change, constantly replacing one thing for another, since either materials or ideals that lead people's lives and organizational models, rapidly loose value; important oppositions of the past are no longer effective and the centre may not even exist.

I propose using Bauman's theory to discuss an issue that emerges in my research; if dance performance can be mediated in several levels and occur in cyberspace, this challenges fundamental principles in the dominant area of theatrical live and ephemeral dance performances, and introduce innovations regarding embodiment, structure, process, content, and relationship with the audience. This process, which I describe as a metaphorical migration between territories – the physical and the digital – causes an understandable anxiety. This is the conflict to address: can dance 'survive' liquidity? My discussion will include references to Helen Thomas (live dance performance) Steve Dixon (digital performance) and Stephen Wilson (information arts) as well as practice examples from professional artists that I have been closely following as case studies for my PHD research.

6 - Electronic Visualisation and the Arts (EVA 2013)

29, 30 and 31 July 2013

Org.: Eva London / BCS – The Chartered Institute for IT

Location: Computer Arts Society, London, UK

About the Conference:

"Over almost two decades, the EVA London conference on *Electronic Visualisation and the Arts* has established itself as one of the United Kingdom's most innovative and interdisciplinary conferences. It brings together a wide range of research domains to celebrate a diverse range of interests with a specialised focus on visualisation.

EVA London 2013 presents a wide spectrum of papers, presentations, demonstrations, an exhibition, and a research workshop. It is a forum where the sciences, arts, humanities and performance are equally at home. EVA London 2013 presents 66 papers and abstracts from 15 countries, by researchers inside and outside academia, from graduate artists, PhD students, seasoned industry professionals, established scholars and senior researchers, who value EVA London for its interdisciplinary community. This year, the conference features three keynote speakers: Prof. Steve DiPaola from Simon Fraser University (Canada); Prof. Linda Candy from the University of Technology (Australia); and Don McIntyre from the Glasgow School of Arts (United Kingdom)".

Excerpt from conference proceedings announcement in
http://ewic.bcs.org/category/17656 [accessed 10 October 2014]

Presented paper abstract:
"Body and movement visualisations in new media dance"
Paula Varanda

The primacy of vision in perception and the critique of disembodiment have been central issues in new media theory and remain troublesome in digital culture discussions. These concerns matter to performance artists and they partially explain why digital technologies are scarcely used to make and show new compositions outside the theatre venue. However, some new media dance artworks exist, which are good examples that counterweigh associations of the digital with the artificial, and fears that the body evaporates in the information network and screen surfaces of virtual reality.

Combining Frank Popper's concept of techno-aesthetics with principles of dance analysis, this paper discusses three different projects (that I have been following as case studies for my PHD research) where body and movement visualizations depend on the technologies and ideas involved to make the artworks. Popper argues that virtual art humanizes computer technologies with its emphasis on interactivity and multisensorial features, reflecting a new philosophical understanding of the virtual. I propose extending his framework, which is aimed at the plastic arts, to analyze works where dance has a principal position. This will highlight how the artists draw on the technique by assimilating the medium, and the artworks humanize technology hence drawing on the philosophical debate.

7 - Mobilities, International Festival of Digital Dance Performance

26 and 27 April 2014

Org: dancedigital. Location: University of Bedfordshire, UK

About the Conference:

"Dancedigital**,** one of the UK's leading dance organisations based in Bedfordshire and Essex, leads the field in the development of technical innovations in choreography and dance. In April, to celebrate the latest achievements and best work of an outstanding group of dance practitioners, the organisation will stage its first digital dance festival in association with the University of Bedfordshire.

The current dancedigital theme, Mobilities, offers opportunity to consider how digital technologies transform experiences of the mobile in new choreographies that may be located on stage, online or on the ground. We are interested in the distinct performance vocabularies and innovative modes of embodiment that are enabled by digitally embedded choreographic processes. We are also interested in the mobility of collaborations across disciplines that bring together the expertise, vision and innovation of artists, technologists, scientists and users in the creation of new art works".

Excerpt from announcement in
http://www.dancedigital.org.uk/dancedigitaldev
[Accessed 26 April 2014]

Presented paper abstract:
"Techno-aesthetics and dance analysis: tools for the critical appreciation of a portable new media dance installation" / take 1
Paula Varanda

Incursions of dance-led teams into the exploration of digital technologies started proliferating in the mid 1990s and since then developed as an international and specialized scene. This pioneering work is acknowledged in various publications that praise how they extend their own artistic field and resist pervading technodeterminist or capitalist narratives. Yet I argue, further critical analysis of such practices is needed if we wish to support their distinctive discourse in societies dominated by mass media information, online communities and virtual environments. In this paper I propose analyzing the I-phone dance application *Soi Moi* (n+n Corsino, France 2010) in order to understand how this work creatively explores an interdisciplinary terrain and contributes to eradicate the mind/body separation paradigm.

8 - xCoAx – international conference on Computation, Communication, Aesthetics and X

26 and 27 June 2014

Org: University of Bergamo and Faculdade de Belas Artes, Oporto University

Location: Almeida Garret Library, Oporto, Portugal

About the Conference:

"The development of computational tools and media has been radically transforming the landscape for the practice of the arts, of design and of numerous cultural manifestations. Recognizing this, xCoAx is designed as a multi-disciplinary enquiry on arts, computers, computation, communication and the elusive x factor that connects them all.

xCoAx is a forum for the exchange of ideas and the discovery of new and valuable synergies. It is an event exploring the frontiers of digital arts with the participation of a diverse confluence of computer scientists, media practitioners and theoreticians, with a focus on the relations between what can and cannot be computed, what can and cannot be communicated, what is beautiful and how humans and computational systems intersect in the development of new directions in aesthetics".

Excerpt from announcement in
http://2014.xcoax.org/ [accessed 30 June 2014]

Presented paper abstract:
"Migrations: dancing bodies across media"
Paula Varanda

Although in public common sense and institutional circuits a notion prevails that dance only fulfils its nature as a live art form, several practitioners have been exploring remarkable and creative endeavours that defy that understanding. Furthermore, stop animation, data processing and motion capture technologies enable choreography to expand beyond the human body, challenging the reasoning that dance must have a corporeal manifestation. While theoretical discussions define dance as a system that combines various elements, they also emphasize the role of performer to represent the discipline. Looking at early experiences that have transferred theatre performance to the cinema and new media dances that encourage sensual human-computer interactions, this article reviews how choreographers resolve the challenges of migration and keep the body as a central medium to articulate artistic knowledge and identity.

9 - DRHA2014 – Communication futures: Connecting interdisciplinary design practices in arts/culture, academia and the creative industries

31 August and 1,2,3 September 2014
Org: DRHA and University of Greenwich Location: University of Greenwich, London, UK

About the Conference:

"Human beings, as users, have always been obsessed with finding new ways of communicating through various techniques and technologies. The rapid technological changes that have occurred during the last two decades have allowed us – the users – to communicate through various social media platforms, providing us with easier, faster and more frequent ways of communicating.

However there are always concerns about other impacts those technologies might have on communication processes. The aim of the conference is to facilitate conversations on Design and collaborations between Digital Arts and Humanities, Creative Industries, Digital Libraries and Archives, with an emphasis on communication futures and their impact on historical, theoretical, and knowledge-transfer research processes.

Digital Research in the Humanities and Arts [DRHA] is an annual conference whose goal is to bring together the creators, users, distributors, and custodians of digital research and resources in the arts, design and humanities to explore the capture, archiving and communication of complex and creative research processes".

Excerpt from announcement in
http://www.drha2014.co.uk / [accessed 31st August 2014]

Presented paper abstract:
"Techno-aesthetics and dance analysis in the critical appreciation of a portable new media dance installation" / take 2
Paula Varanda

Dance-led teams have been exploring digital technologies since the 1990s, with projects that span from analytical and documentation tools to creative and generative examples based on stage configurations or screen interfaces. Studies accounting for these practices are often committed with a practitioner's perspective, focusing on how new techniques and concepts may be used. However, I argue, to support the distinctive value of these artworks further appreciation in aesthetic terms is required.

From the position of the expert spectator that searches for objectifying results and is committed with critical appreciation, I propose examining smartphone application *Soi Moi – Self as Me* (n+n Corsino 2010), considering the components involved and their treatment, as well as the thematic focus of this dance artwork. My intent is to defend the significance and uniqueness of this project, which creatively explores an interdisciplinary terrain, complying with conventions of contemporary dance and bringing original approaches to digital tools.

To do so I will employ Frank Popper's concept of techno-aesthetics and engage with structuralist and interpretative strategies used in dance analysis. In *Soi Moi,* the utilitarian function of a communication device is transcended by a poetic and playful experience; the artists have reinstated the human body's protagonist role to generate ephemeral encounters with the imaginary and the unspeakable, and hence contaminate the codes and machines with human subjectivity.

10 - Post-Screen – Device, Medium, Concept – 1st conference of the International Festival of Art, New Media and Cybercultures

28, 29 November 2014

Org: CIEB Faculdade de Belas Artes de Lisboa, Lisbon, Portugal

About the Conference:

Since the mid-20th century, technological development has been growing to such an extent, that it became an inescapable influence in everyday life of contemporary society. The use of portable cameras, the easy and widespread access to video and photo editing softwares, the use of social networks, as well as interactive games are part of the personal, professional and social daily routine of every individual.
The subject of the POST SCREEN Festival 2014 will be "Device, Medium and Concept". Recognizing that these aspects exist in a hybrid territory whose borders are sometimes very faint and not always possible to distinguish, we intend to discuss the use of screen-based "devices" (traditional, analog or digital) as a tool used in artistic practices and social behaviours; the screen as "medium", entails the production and archiving of works of art, cultural and social activities, exclusively generated through technological screens making use of intrinsic technological attributes that a given medium provides; the screen as a "concept", refers mainly to the aesthetic, phenomenological and social aspects that involve the idea of screen. With these aspects we intended to reexamine some of several issues concerning art and culture mediated by screens.
The Festival will comprise a cycle of conferences, a group exhibition of artworks in a virtual gallery and workshops. This event aims to gather a number of experts in diverse fields of research and artistic practice and promote an interdisciplinary discussion and an exhibition of creative productions on emerging issues related to the use of new technologies (moving image, sound, digital images, virtual reality, immersive environments, network cultures).

Excerpt from Announcement in:
http://postscreen.fba.ul.pt/#/the-festival/call-submissions [accessed 14 December 2014]

Presented paper abstract:
"Dance performance in cyberspace: self and social experienced with the body"
Paula Varanda

This presentation discusses an artwork that uses new media as a means of creative production and presentation in cyberspace, exploring telepresence in virtual environments where body movement is a primary agent that enables self-awareness and communication with others. *Me and My Shadow* (Hyde, 2012) is an installation, where visitors participate in an international encounter that occurs on a shared online environment, connected through portals from different countries. Recurring to theoretical writings about dance, performance, cyberculture and new media, I shall be looking at how this artwork creates a 'place' inside cyberspace, employs the notions of performer and performance and what experience can be recorded with a phenomenological account